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NUMBER TWO

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NORTHWESTERN UNIVERSITY STUDIES IN THE BIOLOGICAL SCIENCES AND MEDICINE
NUMBER TWO

# A CATALOG OF ILLINOIS ALGAE

BY

MAX E. BRITTON

NORTHWESTERN UNIVERSITY

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# TABLE OF CONTENTS


| | Page |
|---|---|
| FOREWORD | vii |
| ACKNOWLEDGMENTS | viii |
| INTRODUCTION | 1 |
| REVIEW OF THE LITERATURE | 5 |
| PLAN AND ARRANGEMENT OF THE CATALOG | 12 |
| CLASSIFIED CATALOG OF ILLINOIS ALGAE | 15 |
| Phylum: Cyanophyta | 15 |
| Class: Myxophyceae | 15 |
| Family: Chroococcaceae | 15 |
| Pleurocapsaceae | 19 |
| Oscillatoriaceae | 19 |
| Nostocaceae | 25 |
| Scytonemataceae | 28 |
| Stigonemataceae | 29 |
| Rivulariaceae | 29 |
| Phylum: Rhodophyta | 30 |
| Class: Rhodophyceae | 30 |
| Family: Batrachospermaceae | 30 |
| Thoreaceae | 30 |
| Phylum: Chrysophyta | 30 |
| Class: Xanthophyceae | 30 |
| Family: Botryococcaceae | 30 |
| Ophiocytiaceae | 31 |
| Tribonemataceae | 32 |
| Botrydiaceae | 33 |
| Class: Chrysophyceae | 34 |
| Family: Mallomonadaceae | 34 |
| Syncryptaceae | 34 |
| Synuraceae | 35 |
| Ochromonadaceae | 35 |
| Rhizochrysidaceae | 36 |
| Class: Bacillariophyceae | 37 |
| Family: Coscinodiscaceae | 37 |
| Eupodiscaceae | 40 |
| Rhizosoleniaceae | 41 |
| Tabellariaceae | 41 |
| Meridionaceae | 42 |
| Diatomaceae | 42 |
| Fragilariaceae | 43 |
| Eunotiaceae | 47 |
| Achnanthaceae | 48 |
| Naviculaceae | 49 |
| Gomphonemataceae | 59 |
| Cymbellaceae | 61 |
| Nitzschiaceae | 64 |
| Surirellaceae | 66 |


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| | Page |
|---|---|
| Phylum: Chlorophyta | 69 |
| Class: Chlorophyceae | 69 |
| Family: Polyblepharidaceae | 69 |
| Chlamydomonadaceae | 69 |
| Volvocaceae | 69 |
| Sphaerellaceae | 74 |
| Palmellaceae | 74 |
| Tetrasporaceae | 75 |
| Ulotrichaceae | 75 |
| Microsporaceae | 76 |
| Cylindrocapsaceae | 77 |
| Chaetophoraceae | 77 |
| Protococcaceae | 81 |
| Coleochaetaceae | 81 |
| Cladophoraceae | 82 |
| Oedogoniaceae | 85 |
| Schizomeridaceae | 98 |
| Chlorococcaceae | 98 |
| Endosphaeraceae | 98 |
| Characiaceae | 99 |
| Hydrodictyaceae | 99 |
| Coelastraceae | 105 |
| Oocystaceae | 106 |
| Scenedesmaceae | 111 |
| Vaucheriaceae | 117 |
| Zygnemataceae | 119 |
| Mesotaeniaceae | 132 |
| Desmidiaceae | 133 |
| Phylum: Pyrrophyta | 142 |
| Class: Dinophyceae | 142 |
| Family: Glenodiniaceae | 142 |
| Peridiniaceae | 143 |
| Heterodiniaceae | 143 |
| Phylum: Euglenophyta | 145 |
| Class: Euglenophyceae | 145 |
| Family: Euglenaceae | 145 |
| Colaciaceae | 153 |
| Excluded Species | 154 |
| Bibliography | 156 |
| Index | 163 |

# FOREWORD

Advancement in our knowledge of the fresh-water algae in general and of algal distribution in particular stems from many different kinds of publications, running the gamut from comprehensive and monographic volumes to modest reports of local lists. It will continue to be necessary for many persons to collect and identify algae, to describe and report them from all sorts of habitats throughout the world, and to cultivate them under various laboratory conditions. Only in this way may our inquiries into the taxonomy, morphology, physiology, ecology, and genetics of the algae make appreciable progress.

Literature on the algae has accumulated with such rapidity during the last three or four decades that it is necessary now and then to assemble the known data in a form more readily available to students of this plant group. The number of papers dealing directly or indirectly with Illinois algae is very large, as indicated in the bibliography at the end of this book. The first step in summarizing our knowledge to date of the algae of Illinois is largely bibliographic, involving an examination into such matters as distribution, synonymy, and classification. The "Catalog of Illinois Algae" represents this first step.

Such a venture is by no means an easy task, and perhaps completeness is scarcely to be attained. Professor Britton has, however, attacked the problem in a thorough-going manner, using both published and unpublished data—many of them his own—for the present summary. He will welcome corrections and additions to the Catalog.

The department of botany at Northwestern University plans to extend this summary survey in subsequent reports to include descriptions, keys, illustrations, and habitat analysis for the algal groups growing in Illinois. It is hoped that such a series will stimulate interest in and continued investigation of these aquatic plants.

L. H. TIFFANY

# ACKNOWLEDGMENTS

In the course of preparing this catalog, the writer has enjoyed the helpful aid and criticism of several specialists. Grateful acknowledgment is made to Mr. Paul S. Conger, Diatomist of the Smithsonian Institution of Washington, for help with the Bacillariophyceae; to Dr. E. N. Transeau, of The Ohio State University, for help with the Zygnemataceae, as well as for his generosity in making available a great many of his unpublished Illinois algal records; to Dr. F. Drouet, Curator of Cryptogamic Botany at the Field Museum of Natural History,[1] for aid with the Myxophyceae and for making available several of his unpublished Illinois records of Myxophyceae, and for identifying many of my own collections of Myxophyceae; and to Dr. C. E. Taft, of The Ohio State University, for helpful suggestions relative to the Desmidiaceae. Sincere thanks are expressed to Dr. L. H. Tiffany, of Northwestern University, who has given invaluable aid in many ways throughout the preparation of the catalog.

All errors of whatever nature that may occur in the catalog are strictly the responsibility of the writer and are not to be attributed to any of those who kindly gave of their time and assistance. The system of classification and use of synonyms do not necessarily conform in every way to the opinions of the specialists consulted, and should in no way reflect unfavorably on them. Because of many diverse difficulties, their suggestions could not always be followed, but it is believed no very serious deviations have occurred.

[1] Since the submission of this manuscript, the Field Museum of Natural History has become the Chicago Natural History Museum.

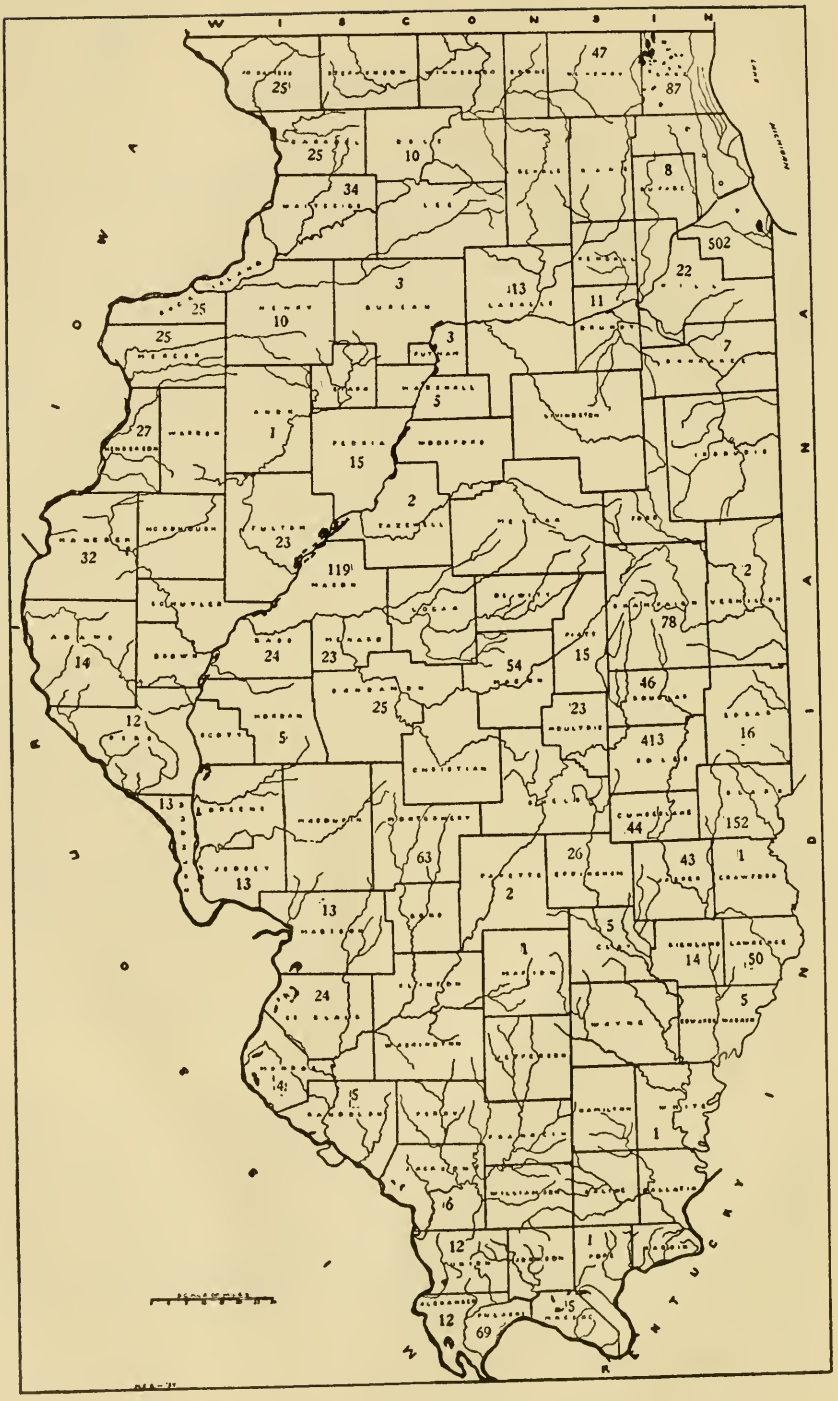
# INTRODUCTION

Interest in the algae of the State of Illinois, as indicated by the published literature, extends back to the middle of the past century; since early in the present century, this interesting group of plants has been studied in the State by some of the best-known and most critical workers in this country. To the present date, algal species have been reported in the published literature from only 64 of the 102 counties, and among these only 10 counties are represented by as many as 50 species and only 4 by 100 or more species (see map, p. 2). Despite this seemingly inadequate knowledge of Illinois algae, more than 90 papers have appeared as a more accurate testimonial to the interest and attention which the algae of the State have received, directly or indirectly. Although many of these reports are but brief notes resulting from limited investigations, there are a few of outstanding interest, which have resulted from intensive studies of localized areas over periods of many years, and which have had a major influence on the subsequent course of algological and limnological research in this and other countries.

Beginning in 1938, the writer made a study, submitted as a thesis for the Ph.D. degree in botany at Northwestern University, of distribution of algae about the southern end of Lake Michigan in certain counties of Wisconsin, Illinois, Indiana, and Michigan. In the course of this study, a review of the Illinois literature was made and a checklist of the algae previously reported compiled, a classified summary of which was subsequently published (Britton 1940). More recently, believing this list to be of interest especially to algologists of the Middle West and particularly to students of algology of Illinois, the data have been reorganized and expanded into this catalog of all algae known by the writer, from published or unpublished sources, to occur in the State. Previously unpublished records include those of the writer, as well as a large number made available through the courtesy of Dr. E. N. Transeau of The Ohio State University and Dr. F. Drouet of the Field Museum of Natural History.

The records included are based on reports from the various algal habitats within the State boundaries and from waters occurring at and forming these boundaries. All records from the Mississippi, Ohio and Wabash Rivers where they adjoin the State are included as Illinois records without regard to the point where the collections were made relative to the midstream State boundary. Reports of algae from Lake Michigan have been included only if based on collections obtained within the lakeward boundaries of Cook and Lake Counties.

Reference to the Illinois map (p. 2) reveals that of the 64 counties




The Number of Known Algal Species for Each County

from which algal species are reported, over 40 lie along the Mississippi, Ohio, Wabash, Illinois, Sangamon and Rock Rivers. With but few exceptions, these counties, for the most part represented by small numbers of species, have not been studied at all in the interior portions, but the records are based on collections from the streams along which these counties lie. The principal exceptions are Clark, Lawrence and Pulaski Counties, and a few others the inland waters of which have been studied to a minor extent. The only State area that has been intensively studied algologically over any considerable number of years is east-central Illinois in the region centering about Coles County, where Dr. E. N. Transeau did his especially noteworthy work early in this century. Although Cook County shows a greater total, 502 species, than any other county, it should be noted that the figure is weighted considerably by the large number of Lake Michigan species, mainly diatoms, which are included. Coles County to date is the most critically and intensively studied interior area of the entire State, with a total representation in this catalog of 413 species and varieties of algae.

The catalog contains a total of 178 genera and 962 species, varieties and forms of algae distributed among the various algal groups as summarized in the following classified list. The first number in each case refers to genera and the second to species, varieties or forms.

Cyanophyta 29-98
- Myxophyceae 29-98
  - Chroococcales 8-16
    - Chroococcaceae 8-16
  - Chamaesiphonales 1-1
    - Pleurocapsaceae 1-1
  - Hormogonales 20-81
    - Homocystineae 7-46
      - Oscillatoriaceae 7-46
    - Heterocystineae 13-35
      - Nostocaceae 5-22
      - Scytonemataceae 3-6
      - Stigonemataceae 1-1
      - Rivulariaceae 4-6

Rhodophyta 2-2
- Rhodophyceae 2-2
  - Nemalionales 2-2
    - Batrachospermaceae 1-1
    - Thoreaceae 1-1

Chrysophyta 51-308
- Xanthophyceae 4-14
  - Heterococcales 2-8
    - Botryococcaceae 1-2
    - Ophiocytiaceae 1-6
  - Heterotrichales 1-4
    - Tribonemataceae 1-4
  - Heterosiphonales 1-2
    - Botrydiaceae 1-2
- Chrysophyceae 6-15
  - Chrysomonadales 5-14
    - Chromulineae 2-4
      - Mallomonadaceae 2-4
    - Isochrysidineae 2-2
      - Syncryptaceae 1-1
      - Synuraceae 1-1
    - Ochromonadineae 1-8
      - Ochromonadaceae 1-8
  - Rhizochrysidales 1-1
    - Rhizochrysidaceae 1-1
- Bacillariophyceae 41-279
  - Centrales 6-30
    - Coscinodiscineae 5-28
      - Coscinodiscaceae 4-27
      - Eupodiscaceae 1-1

Rhizosolenineae 1-2
Rhizosoleniaceae 1-2
Pennales 35-249
Fragilarineae 7-42
Tabellariaceae 1-2
Meridionaceae 1-2
Diatomaceae 1-5
Fragilariaceae 3-28
Eunotiaceae 1-5
Achnanthineae 3-10
Achnanthaceae 3-10
Naviculineae 19-150
Naviculaceae 13-95
Gomphonemataceae 2-23
Cymbellaceae 4-32
Surirellineae 6-47
Nitzschiaceae 3-19
Surirellaceae 3-28
Chlorophyta 88-509
Chlorophyceae 88-509
Volvocales 9-13
Polyblepharidaceae 1-1
Chlamydomonadaceae 1-1
Volvocaceae 6-10
Sphaerellaceae 1-1
Tetrasporales 5-8
Palmellaceae 3-5
Tetrasporaceae 2-3
Ulotrichales 18-55
Ulotrichineae 14-43
Ulotrichaceae 3-7
Microsporaceae 1-6
Cylindrocapsaceae 1-2
Chaetophoraceae 6-20
Protococcaceae 1-1
Coleochaetaceae 2-7
Cladophorineae 4-12
Cladophoraceae 4-12
Oedogoniales 2-127
Oedogoniaceae 2-127
Ulvales 1-1
Schizomeridaceae 1-1
Chlorococcales 28-95
Chlorococcaceae 2-2
Endosphaeraceae 2-2
Characiaceae 1-3
Hydrodictyaceae 3-13
Coelastraceae 1-4
Oocystaceae 15-42
Scenedesmaceae 4-29
Siphonales 2-13
Vaucheriaceae 2-13
Zygnematales 23-197
Zygnemataceae 6-105
Mesotaeniaceae 4-4
Desmidiaceae 13-88
Pyrrophyta 3-11
Dinophyceae 3-11
Dinoflagellatae 3-11
Peridiniales 3-11
Glenodiniaceae 1-4
Peridiniaceae 1-5
Heterodiniaceae 1-2
Euglenophyta 5-34
Euglenophyceae 5-34
Euglenales 4-32
Euglenaceae 4-32
Colaciales 1-2
Colaciaceae 1-2

# REVIEW OF THE LITERATURE

The algae of Illinois have received the attention of but few workers whose interest has been primarily in taxonomic treatment of the group. However, among the 94 papers including information on Illinois algae, there are a few from some of the most active algologists in this country to whom we owe the greater part of our knowledge of algae in this State. A large proportion of the papers are fish and pollution studies dealing only secondarily with the algae and often listing only genera. Many of the papers are duplications and summaries, or are monographic in nature, the records reported being taken from previous publications and representing no new collections, identifications or new records of distribution in the State.

The literature has been divided for the purpose of discussion into five groups based on the types of investigations involved. First to be considered are those papers which contribute mainly to the extension of knowledge of the floristics, taxonomy and distribution of algae within the State. Second are those papers, mainly ecological in content, which deal primarily or secondarily with the algae. Included in this group are those papers dealing with pollution studies. Third are those papers considering food relations of animals; fourth, monographs and other comprehensive studies of the algae, not limited to but mentioning Illinois algae; and fifth, miscellaneous papers only indirectly concerned with the algae. This classification is somewhat arbitrary, since, in a sense, all the papers are taxonomic studies, and, further, many papers have ecological aspects (*i.e.*, fish-food studies), despite the fact that they are not here classified as such. However, this segregation of papers is one of convenience, and will serve to indicate the types of research conducted that involve Illinois algae.

## Taxonomic and Floristic Studies

Of the total of 94 papers known to the writer, 40 may be considered as taxonomic contributions dealing directly either with the identification and distribution of Illinois algae, or with the description of new genera and species whose type localities are within the State. Of these 40 papers, 12 are studies of the inshore areas of Lake Michigan, principally at Chicago and Evanston (Ahlstrom 1936; Atwell 1889; Babcock 1872B; Briggs 1872A, B, C; Forbes 1883A; Jelliffe 1893; Skvortzow 1937; Smith 1878; Stimson 1870; Thomas & Chase 1887).

The most extensive of these papers is that of Thomas & Chase, who reported a total of 211 species and varieties of diatoms distrib-

uted among 34 genera, the largest single study of Illinois diatoms thus far to appear. Other notable lists are those of Briggs (1872B) and Jelliffe (1893), who reported respectively 23 genera and 45 species and 21 genera and 26 species, mainly of diatoms. In a more recent study, Ahlstrom[1] (1936) listed 41 species and varieties, mainly diatoms, from Lake Michigan at Evanston. Skvortzow (1937) published a list of 17 species and varieties of diatoms from Lake Michigan, 2 varieties and 1 species being descriptions of forms new to science.

Only one paper in this group involves algae from the rivers bounding Illinois. Bailey (1845) published "Notes on the Infusoria of the Mississippi River," the first paper known to the writer to mention algae from Illinois or its boundary waters. Nine genera and 14 species of algae were listed.

The remaining 27 papers in this group, dealing with algae of inland waters, include 10 publications which appeared prior to or during 1900 (Clinton 1894; Garman 1890; Hempel 1896, 1898; Hazen 1899; Hedgecock and Hunter 1899; Johnson 1894; Johnson and Atwell 1890; Kofoid 1898, 1899, 1900). The majority of these papers give but brief notes of the algae, the most noteworthy being that of Johnson and Atwell, who investigated the algal flora of northwestern Cook County and reported the occurrence of 38 genera and 102 species and varieties distributed among three algal classes, mainly Chlorophyceae. The papers of Kofoid are notable, as they include the original descriptions of some of our most frequently found algae. *Pleodorina illinoisensis* Kofoid was first described (1898) from the plankton of the Illinois River and was followed (1899, 1900) by the description of *Platydorina caudata* Kofoid, collected from the same stream. Accompanying these descriptions is the mention of a few associated plankton species.

Publications since 1900 include some of the most important taxonomic treatments of Illinois algae thus far to appear (Britton 1940, 1942; Marshall and Hague 1938; O'Hanlon 1929; Solheim and Penfound 1927; Tiffany 1927, 1939; Transeau 1912, 1913A, B, 1914, 1915, 1934, 1938; Transeau and Tiffany 1919; Transeau, *et al.* 1934). Of these the outstanding and most comprehensive study is that of Transeau (1913B), who published an annotated list of 72 genera and 242 species, varieties and forms of algae from Coles and neighboring counties. Transeau (1912) recorded *Gloeotaenium loitlesbergerianum* from Coles County and followed (1913A) with the complete life history of this alga, previously unknown in North America. Transeau (1914) described 20 new species and varieties among the genera Mou-

[1] In this study of the deepwater plankton of Lake Michigan, Ahlstrom states that most of the deepwater forms were also found in the inshore areas studied in Evanston. In this catalog only those forms definitely stated as occurring at Evanston are included.

geotia, Spirogyra, Zygnema and Oedogonium and followed this paper (1915) with notes on the algal order Zygnematales, based on specimens accumulated during eight years of collecting in east-central Illinois. Further descriptions of new species, partially from Illinois, were published by Transeau (1934, 1938). Transeau and Tiffany (1919) described new species of Oedogonium from Coles and Montgomery Counties, and Transeau, *et al.* (1934) described new species of Zygnemataceae, including 12 species from Illinois waters. Tiffany (1927) described three new species of Oedogonium and one species of Spirogyra from southeastern Illinois, and summarized (1939) the Oedogoniales known to occur in Illinois. Solheim and Penfound (1928) reported 23 genera and 45 species and varieties of algae from a small stream north of Urbana, Champaign County.

### General Ecological and Pollution Studies

Twenty-nine papers published between 1872 and 1941 may conveniently be considered in this group. Five of these (Babcock 1872A; Daily 1938; Damann 1940, 1941; Eddy 1927B) concern the algae of Lake Michigan. Babcock studied the effect of the reversal of the Chicago River on Chicago hydrant water, and reported 13 genera and 9 species of diatoms. In a quantitative study of Lake Michigan plankton, Eddy reported a total of 35 genera and 37 species and varieties of phytoplankton encountered during a comparison of collections made in the Lake at Chicago in the period from November, 1887, to November, 1888, with collections made from the same stations in 1926 and 1927. Daily listed 45 genera and 21 species and varieties during his quantitative study of Lake Michigan plankton at Evanston. Damann, continuing this study begun by Daily at Evanston, reported only genera, mainly of diatoms.

Two papers (Galtsoff 1924; Purdy 1922) deal with studies of rivers at Illinois State boundaries. Galtsoff conducted a limnological survey of the upper Mississippi River, a part of the study taking place in that section of the river extending from the northern boundary of Illinois southward to Burlington, Iowa. Thirty-one genera and 29 species and varieties of algae were recorded from this section of the river. Purdy reported 5 genera and a single species of algae from the Ohio River where its course adjoins Massac and Pope Counties.

The remaining 22 papers in this group (Adcock 1922; Agersborg 1930; Eddy 1924, 1925, 1927A, 1931A, B, 1934; Forbes and Richardson 1913, 1919; Gates 1912; Houdek 1923; Jewell 1920, 1922; Kofoid 1903, 1908; Leighton 1907; Purdy 1930; Richardson 1921; Transeau 1913C, 1916; Welch 1942) include some of the most important algological contributions from Illinois students, which have had remarkable influence on the course of algological and related research in this country and in other countries. Two classic studies (Kofoid 1903,

1908; Transeau 1913C, 1916) are of outstanding importance. Kofoid published in 1903 the first volume of his widely-known pinoneering study of the plankton of the Illinois River, including in Part I, "Quantitative Investigations and General Results." This volume contains mention of 35 genera and 25 species of algae, mainly diatoms, from the Illinois River and lakes nearby and small streams of Fulton and Mason Counties. In 1908, Part II, "The Constituent Organism and Their Distribution" was published, this volume including data on 76 genera and 138 species and varieties of algae, mainly Chlorophyceae and Bacillariophyceae from the Illinois River.

Transeau (1913C) reported the results of a five-year study in East-central Illinois of the periodicity of algae based on "their periods of greatest abundance, the duration of their vegetative cycles and the times of their reproduction." Twenty genera and 32 species and varities, mainly Chlorophyceae, were classed as winter annuals, spring annuals, summer annuals, autumn annuals, perennials, ephemerals, or irregulars. This paper was followed in 1916 by a similar report based on a seven-and-one-half-year study of 27 genera and 60 species and varieties of algae.

Eddy published a series of papers resulting from his investigations of freshwater algal communities. In 1925 he reported 22 genera and 2 species observed during a study of algal succession in ponds and streams in Vermilion and Piatt Counties, and in 1927 (1927A) reported 20 genera and 6 species found during similar investigations of Crystal Lake and some small ox-bow ponds in the vicinity of the University of Illinois, Urbana, Champaign County. Two papers appearing in 1931 (Eddy 1931 A, B) reported results of investigations of the plankton of the Sangamon River and of a group of sink-hole ponds in Pulaski County, respectively. These papers were followed in 1934 with a summary of freshwater algal community studies, including mention of 34 genera and 38 species and varieties of Illinois algae.

In addition to the work of Kofoid on the Illinois River is that of Forbes and Richardson (1913), who reported 17 genera and 18 species of algae found during their study of the upper portion of the river, and who, in 1919, mentioned a few diatoms encountered in their study of changes in the biology of the river after the opening of the Chicago Drainage Canal. Leighton (1907) published an account of investigations of the effect of Chicago sewage on pollution of the Illinois and Mississippi Rivers, mentioning 40 genera of algae. Purdy (1930) made an extensive study of the pollution of the Illinois River and certain of its tributaries. Fifty genera and 17 species of algae were recorded.

Jewell (1920) reported 19 genera of algae from the Sangamon River and in 1922 two genera from the Big Muddy River. The papers of

Adcock (1922) and Houdek (1923) are the results of ecological investigations of Lake Knox, near Galesburg, in Knox County. In these papers only a few algae are mentioned—2 genera and 1 species in the former, and 11 genera in the latter. Gates (1912) listed 2 genera of algae from Lake County in his study of the vegetation of beach areas.

### Studies of Algae as Animal Food Supply

Forbes (1880, 1883B, 1888A, B) reported the results of investigations of plants used as a source of food by freshwater fishes in Illinois. In each of these papers a few algae, usually only genera, were recorded. The only other study of algae in relation to the foods of Illinois fishes that has come to the attention of the writer is that of Eddy and Simer (1928), who examined the stomach contents of the paddlefish (*Polydon spathula*) taken from the Illinois River at Meredosia, Morgan County. This analysis resulted in the listing of 6 genera and 4 species of algae.

Baker (1922), in a study of the Mollusca of the Big Vermilion River in Champaign County, reported the occurrence of 7 genera and 8 species of algae identified by E. N. Transeau.

### Monographs and Other Comprehensive Reports

Thirteen papers known to the writer may be included in this group. In these, the Illinois records are usually but not always summaries of distribution, the various species having been previously reported in other publications.

F. S. Collins (1909) published "The Green Algae of North America," a volume which for many years was the standard English-language reference available to students of North American algae. Thirteen genera and 23 species and varieties of Chlorophyceae from the collections of E. N. Transeau are included. This volume was followed by two supplements (Collins 1912, 1918), the first of which contained mention of 5 genera and 11 species of Illinois algae, also from the Coles County collections of E. N. Transeau. In the second supplement, Collins indicated the growing interest of botanists in the algae, and noted the increased numbers of species recorded for the United States since the publication of the two preceding volumes. According to Collins, "the largest contributors to this increase have been E. N. Transeau and G. M. Smith." Transeau's earlier papers are acknowledged, and his records of Illinois Chlorophyceae, including 6 genera and 50 species, mainly Oedogoniaceae and Zygnemataceae, added to the supplement.

Tilden (1910) included 5 genera and 6 species of Myxophyceae from Cook County in her "Myxophyceae of North America." These were contributions of L. N. Johnson and C. B. Atwell.

Transeau (1925) published a critical analysis of the genus Debarya and gave distribution records of the known species, including *Debarya decussata* Transeau (now *Zygnemopsis decussata* Transeau) from Illinois. The following year (Transeau 1926) a similar treatment of the genus Mougeotia, including 14 Illinois species and varieties, was published.

Tiffany (1928) monographed the genus Bulbochaete, listing 13 species and varieties as occurring in Illinois. This paper was followed (Tiffany 1930) by a definitive illustrated monograph of the family Oedogoniaceae, the first comprehensive treatment of this group to appear in the English language. Distribution records known to the author at that time show Illinois to be represented by 13 species and varieties of the genus Bulbochaete and 69 species, varieties, and forms of the genus Oedogonium. Tiffany (1937) revised his monograph, including only those species known to occur in North America, as a special edition of "North American Flora" published by the New York Botanical Garden. Additional distribution records and changes of synonomy resulted in a slight shift in the number of species of this group from Illinois. At this time (1937) Illinois records numbered 14 species, varieties and forms of Bulbochaete and 76 of the genus Oedogonium.

Brown (1929) published her interpretation of the family Vaucheriaceae and listed *Dichotomosiphon tuberosus* (A. Br.) Ernst and 7 species of the genus Vaucheria from Illinois.

Eddy (1930) published an account of the "Freshwater Armored or Thecate Dinoflagellates," listing 5 genera and 16 species of this group known to occur in the United States, 3 genera and 10 species of which were reported from Illinois.

Ahlstrom (1937) studied variability in the genus Dinobryon and listed 6 species and varieties collected from Lake Michigan and small lakes of northeastern Illinois.

Smith (1933) mentions a few Illinois algae in his "Freshwater Algae of the United States," including *Sirogonium illinoisense* (Trans.) Smith, originally described as *Spirogyra illinoisensis* by Transeau from type material collected in Illinois.

### Miscellaneous Papers

The following papers are mainly experimental studies involving the use of algae collected in the State. Davis (1904) studied oogenesis in the genus Vaucheria, using as a source of material a collection of *Vaucheria geminata* forma *racemosa* (Vauch.) Walz, from Chicago, Cook County. Wesley (1928) studied the asexual method of reproduction in 4 species of Coleochaete collected in Washington Park, Chicago.[2]

[2] Not all of these records are recorded specifically as coming from Washington Park, but such may be inferred from the text.

Baylis and Gerstein (1929) reported the effects of plankton on the filtration of lake water, and discussed methods of counting such organisms. Thirty-nine genera, mainly Bacillariophyceae and Chlorophyceae, are mentioned.

Ohashi (1930) made a cytological study of the genus Oedogonium, using an undetermined species collected at Jackson Park, Chicago, and *Oedogonium grande* Kuetz. collected in a swamp at Palos Park near Chicago.

Richardson (1930) reported results of experimentation with fish culture in balanced aquaria. Plants collected at Havana, Mason County, and used in the experiments, included 3 genera and 2 species of algae.

Williams, *et al.* (1931), studied the effects of commerical fertilizers on sugar utilization in the genus Spirogyra. Experimental material consisted of *Spirogyra porticalis* (Muell.) Cleve, obtained from a small lake near Urbana, Champaign County.

# PLAN AND ARRANGEMENT OF THE CATALOG

The catalog has been arranged as simply as possible to bring together in as brief a summary as seems feasible all the information concerning Illinois algal species that is known to the writer. The genera and species are presented in a classified form, following with but minor modifications the scheme of classification of G. M. Smith's "Freshwater Algae of the United States." The algae are listed alphabetically by genera in each family and by species in each genus. Synonomy has been brought up to date in all cases where such corrections seemed possible with reasonable accuracy. Species which could not be corrected or which for other reasons appeared to be worthless have been listed separately as "Excluded Species" (see. p. 154). It is perhaps possible that some of these excluded species can be shown by some workers to merit a place in modern interpretations of the algae and for this reason they are included here. The problem of correcting synonomy is at best a hazardous one when no specimens are available for study, and usually a bare name is the only point of departure. The assumption that identifications were correct in the first place undoubtedly results in some error, but it is believed by the writer that such errors are a minimal possibility in the Illinois reports, since much of the more important work has been done by recognized specialists, and those reports from other workers perhaps not so critical almost invariably involve the commoner species, which almost any algologist should recognize. A further ever-present difficulty is the difference of opinion existing between specialists as to where a species belongs and what the valid name of it should be. An attempt has been made in this catalog to follow insofar as possible the opinions of an accepted specialist for each group. For those who differ in their opinions as to the proper disposal of a given species, the original synonyms will be found carefully preserved here readily available for further change. Perhaps the only algal group for which there will be any considerable difference of opinion is the Bacillariophyceae, and there seems no way of resolving the many conflicting points of view in this group.

It will be noted that following the name of each species a reference is given. The writer has had a two-fold purpose in mind in including these references. In the first place, they indicate a modern authority as to the validity of the species, and will establish the writer's reason for correcting synonomy in each case. Secondly, in most cases these references furnish a readily available means of finding more or less modern descriptions and other information about each species. It

will not be argued that the best reference has always been used, for in their selection an attempt has been made to use the more readily available literature, insofar as possible that written in the English language. Foreign-language references are used in cases where there is a more recent and more adequate treatment of a particular algal group than exists in English publications. Also, insofar as possible, a single reference has been used for a large taxonomic unit even though a slightly better treatment might be available for a particular genus within the larger unit. Original type descriptions are avoided as much as possible and are never used if there is a more general comprehensive and authoritative reference available. In some cases, unpublished manuscripts have been used as authority for changes of synonomy, and the published references given will not be the best possible but the best which most students will at present have available. The point of view taken here, it is believed, will ease the problem of the less well-trained student and will occasion no hardship on the expert, who will be familiar with other sources.

Much of the Illinois literature contains only generic names of algae, and they have been omitted in the catalog, with the exception that each of the articles has been included in the review of the literature. In using the catalog, the following points relative to arrangement of data should be kept in mind:

1. Synonyms as they occur in the Illinois literature are included in italics.
2. All species reports are given by counties, which are arranged alphabetically in bold-face type.
3. Preceding the county name are the names of the authors reporting the species, the date and page numbers of the reference, and the name under which the species was reported if a synonym.
4. Following the county name are the names of cities, towns, or other localities near the point of collections, the type of habitat, and the months of collection (in parentheses).
5. Specific dates of collections are given only for reports from the Field Museum of Natural History and for those of the writer.
6. Herbarium numbers are given for the writer's collections.
7. The absence of a reference date after the name of a person reporting algal species indicates that this information has not previously appeared in print.
8. In the case of many of Dr. E. N. Transeau's reports, unpublished data have been included with published data without distinguishing them.
9. In some cases the data for a given species are too extensive or otherwise unwieldy to follow the system outlined above. In such cases the data have been separated into two units, the first of which includes references arranged chronologically, synonyms,

and counties from which the report was made. In the second unit the county names are arranged alphabetically with the proper data associated. This method simplifies the problem of checking distribution within the State and will entail no particular difficulty to the student who wishes to know who made a particular report of a species, since the only effort required will be the association of the appropriate county names in the two units of data.

# CLASSIFIED CATALOG OF ILLINOIS ALGAE

Phylum: CYANOPHYTA
Class: MYXOPHYCEAE
Order: CHROOCOCCALES
Family: CHROOCOCCACEAE

## ANACYSTIS Meneghini, 1837

A. MARGINATA Menegh. Daily, Amer. Midl. Nat. 27: 649. f. 28 (1942).

Britton: **Cook,** Sag Bridge—quarry pond, Sept. 8, 1939, #1007; small pond and swamp, Sept. 8, 1939, #1021 (*fide* Dr. F. Drouet). **Lake,** Lake Zurich—in Lake Zurich, Aug. 24, 1939, #913, 916; Fox Lake—channel entering east side of Grass Lake, Aug. 25, 1939, #971.

A. PENIOCYSTIS (Kuetz.) D. & D. Daily, *loc. cit.*, p. 651. f. 29, 35, 38 (1942).

Britton: **Cook,** Sag Bridge—quarry pond, Sept. 8, 1939, #1007 (*fide* Dr. F. Drouet).

A. RUPESTRIS (Lyngb.) D. & D. Daily, *loc. cit.*, p. 650. f. 19, 26 (1942).
*Gloeocapsa polydermatica* Kuetz.

Drouet, Field Mus.: **Cook,** Chicago—at water mark on sides of tanks in greenhouse at Garfield Park, coll. by J. A. Steyermark, C. Shoop and F. Drouet, Oct. 30, 1938; Evanston—greenhouse at Northwestern Univ., coll. by K. E. Damann, Mar. 12, 1939. **Lake,** Waukegan—in a depression in sand dunes at Dunes Park, coll. by F. Drouet, P. C. Standley and J. A. Steyermark, June 14, 1940. Kofoid 1908, p. 22, as *Gloeocapsa polydermatica.* **Mason,** Havana—Illinois River ("midsummer").

A. RUPESTRIS var. PRASINA (A. Br.) D. & D. Daily, *loc. cit.*, p. 651. f. 27 (1942).
*Aphanothece stagnina* (Spreng.) A. Br.

Transeau, as *Aphanothece stagnina:* **Coles,** Charleston—ponds (June–Sept.). Britton: **Kankakee,** Kankakee—roadside slough, Apr. 18, 1938, #5.

## APHANOCAPSA Naegeli, 1849

A. GREVILLEI (Berk.) Rab. Daily, *loc. cit.*, p. 640. f. 5 (1942).
*Aphanocapsa brunnea* Naeg.

Transeau 1913, p. 70, as *A. brunnea:* **Coles,** Charleston—ponds (July).

## CHROOCOCCUS Naegeli, 1849

C. LIMNETICUS Lemm. Daily, *loc. cit.*, p. 642. f. 6, 31 (1942).
Britton: **Cook,** Argonne Forest Preserve—Maple Lake, Sept. 8, 1939, #986. **Lake,** Antioch—Lake Marie, Channel Lake and connecting channels, Sept. 14, 1939, #1032, 1033, 1035; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #915; Wauconda—Slocum Lake, Aug. 24, 1939, #926.

C. RUFESCENS (Kuetz.) Naeg. Daily, *loc. cit.*, f. 9 (1942).
*Chroococcus minutus* (Kuetz.) Naeg.
Eddy 1927B, pp. 214, 218, as *C. minutus:* **Cook,** Chicago—Lake Michigan (July).

C. TURGIDUS (Kuetz.) Naëg. Daily, *loc. cit.*, p. 643. f. 7, 8 (1942).
Transeau 1913B, p. 70: **Coles,** Charleston—pond (May, Oct.). Britton 1940, p. 71: **Cook,** Glenview—swamp and intermittent pond about 1½ miles W. on Central Road, May 12, 1938, Apr. 7, 1939, #56, 228; Morton Grove—small pond about 1 mile N.W. on Waukegan Road, May 10, 1938, #43. **Lake,** Waukegan—Dead River in Dunes Park, May 11, 1939, #255; Halfday—pond ½ mile E., Aug. 8, 1939, #772. **McHenry,** McHenry—swamp E. of McCullom Lake, July 6, 1939, #376.

## COELOSPHAERIUM Naegeli, 1848

C. COLLINSII D. & D. Daily, *loc. cit.*, p. 653. f. 24, 25, 34 (1942).
*Coelosphaerium naegelianum* Unger
Eddy 1927B, pp. 214, 218; 1934, p. 400, as *C. naegelianum;* Britton: **Cook,** Chicago—Lake Michigan (July); Sag Bridge—quarry pond and a small pond in an extensive swamp, Sept. 8, 1939, #1007, 1021. Eddy 1934, p. 400, as *C. naegelianum;* Britton: **Lake,** Antioch—Bluff Lake, Channel Lake, Lake Marie and connecting channels, Sept. 14, 1939, #1033, 1037, 1043, 1048; Fox Lake—S. of Indian Point in Fox Lake, channel between Fox Lake and Petite Lake, channel entering E. side of Grass Lake, Aug. 25, 1939, #950, 954, 971; Lake Villa—in Long Lake; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #913–915; Volo—Fish Lake, Aug. 24, 1939, #935. Britton: **McHenry,** McHenry—S. end of Twin Lakes (Lake Elizabeth), Aug. 2, 1939, #729. Eddy 1931B, pp. 454, 460, as *C. naegelianum:* **Pulaski,** Wetaug—sink-hole ponds (Apr., July–Sept., Dec.).

C. KUETZINGIANUM Naeg. Daily, *loc. cit.*, p. 654. f. 23 (1942).
Transeau 1913B, p. 70: **Coles,** Charleston—ponds (July, Sept.) Britton; Eddy 1927B, pp. 208, 218: **Cook,** Argonne Forest Preserve—Maple Lake, Sept. 8, 1939, #986; Chicago—Lake Michigan (Aug.–Nov.). Britton: **Lake,** Fox Lake—channel entering E. side of Grass Lake, Lake Marie, Channel Lake, Bluff Lake, Petite Lake and connecting channels, Aug. 25, Sept. 14, 1939,

#954, 956, 971, 1032, 1033, 1035, 1048; Halfday—3 miles N. in the DesPlaines River at Route 59A, July 29, 1938, #181; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #915; Volo—Fish Lake, Aug. 24, 1939, #935; Wauconda—Slocum Lake, Aug. 24, 1939, #926. Eddy 1931B, p. 451, 460; **Pulaski,** Wetaug—sink-hole ponds (Apr., Sept.).

## GOMPHOSPHAERIA Kuetzing, 1836

G. APONINA Kuetz. Daily, *loc. cit.*, p. 655. f. 20, 21 (1942).
Eddy 1927B, pp. 214, 218; Britton: **Cook,** Chicago—Lake Michigan (July); Palos Park—swamp, July 14, 1939, #556; small pond at Palos Golf Club, Sept. 8, 1939, #1000.

## MERISMOPOEDIA Meyen, 1839

M. CONVOLUTA Breb. Daily, *loc. cit.*, p. 647. f. 16 (1942).
Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—spring-fed stream N. of (Mar.–June, Sept.–Dec.). Transeau 1913B, p. 70: **Coles,** Charleston—ponds (May–July). Britton 1940, p. 71: **Cook,** Morton Grove—small reservoir pond, May 10, 1939, #42. Transeau: **Jasper,** Wheeler—E. of in Embarrass River (Sept.).

M. GLAUCA (Ehr.) Kuetz. Daily, *loc. cit.*, f. 32 (1942).
*Merismopoedia tenuissima* Lemm.
Eddy 1927A, pp. 131, 133; Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—drainage ditch and ox-bow ponds at Crystal Lake Park; spring-fed stream N. of (Aug.). Transeau 1913B, p. 70, as *M. tenuissima:* **Coles,** Charleston—pond (Sept.). Johnson & Atwell 1890, p. 21; Britton: **Cook,** Evanston—aquarium (Mar.); Northbrook—small pond about 3 miles S.W., May 12, 1939, #64; Sag Bridge—small pond, Sept. 8, 1939, #1015. Kofoid 1908, pp. 20, 314: **Mason,** Havana—Illinois River (Jan., Feb., July–Oct.). Eddy 1925, p. 146: **Vermilion,** Muncie—oxbow pond (Nov.).

## POLYCYSTIS Kuetzing, 1849

P. AERUGINOSA Kuetz. Daily, *loc. cit.*, p. 638. f. 1 (1942); Drouet & Daily, Field Mus. Nat. Hist., Bot. Ser. 20: 74 (1939).
*Clathrocystis aeruginosa* Henfr.; *Microcystis aeruginosa* Kuetz.; *Microcystis flos-aquae* (Wittr.) Kirch.; *Microcystis ichthyoblabe* Kuetz.
Kofoid 1908, pp. 20, 292, 314, as *Clathrocystis aeruginosa* and *Microcystis ichthyoblabe* (Mason). Transeau 1913B, p. 70, as *Clathrocystis aeruginosa* (Clark). Galtsoff 1924, pp. 399, 401, 402, 404, 405, 410, as *Microcystis flos-aquae* and *Clathrocystis aeruginosa* (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock

Island, Whiteside). Eddy 1931B, p. 460, as *Microcystis aeruginosa* and *Microcystis flos-aquae* (Pulaski); Eddy 1934, pp. 385, 386, 389, 394, 400, 403, as *Microcystis aeruginosa* (Lake, Macon, Mason, McHenry, Whiteside). Daily 1938, p. 80, as *Microcystis aeruginosa* (Cook). Transeau (Coles). Drouet & Daily, Field Museum (Lake). Britton (Cook, Lake, McHenry).

**Carroll**—Mississippi River (July, Sept.). **Clark,** Casey—reservoir pond (Sept.). **Coles,** Charleston—pond (July). **Cook,** Argonne Forest Preserve—Maple Lake, and a small pond, Sept. 8, 1939, #986, 1915; Evanston—Lake Michigan. **Hancock,** Dallas City—Lake Keokuk (Mississippi River) (July, Sept.). **Henderson, Jo Daviess**—Mississippi River (July–Sept.). **Lake,** Antioch—Petite Lake and Lake Marie, coll. by E. H. Ahlstrom, June 5, 1932; Channel between Grass Lake and Lake Marie, Petite Lake, Aug. 25, 1939, #956, 958; Lake Marie—Channel Lake, Lake Catherine, Bluff Lake, Lake Marie and connecting channels, Sept. 14, 1939, #1028, 1029, 1032, 1033, 1035, 1040, 1047, 1048; Diamond Lake—in Diamond Lake, coll. by E. H. Ahlstrom, June 5, 1932; Fox Lake—in Fox Lake and Pistakee Lake, coll. by E. H. Ahlstrom, June 5, 1932; Grass Lake, Fox Lake, Petite Lake and connecting channels, Aug. 25, 1939, #942, 943, 945, 950, 953, 954, 971; Halfday—DesPlaines River at Route 59A, July 29, 1938, #181. Lake Villa—Sand Lake ("summer"); Lake Zurich—in Lake Zurich, coll. by E. H. Ahlstrom, June 5, 1932; Aug. 24, 1939, #913, 916; Long Lake—in Long Lake ("summer"); Volo—Fish Lake, Aug. 24, 1939, #935; Wauconda—Bangs Lake and Slocum Lake, Aug. 24, 1939, #920, 926; Slocum Lake, coll. by E. H. Ahlstrom, June 5, 1932. **Macon,** Decatur—Lake Decatur (May–Aug.); park pond (June–Oct., Dec.). **Mason,** Havana—Illinois River (all months). **McHenry**—Fox River; Greenwood—Nippersink Creek, Wonder Lake, July 6, 1939, #366, 368, 370. **Mercer**—Mississippi and Edwards Rivers (July, Aug.). **Rock Island, Whiteside**—Mississippi and Rock Rivers (July–Sept.).

P. INCERTA Lemm. Daily, *loc. cit.*, p. 640. f. 2, 3 (1942); Drouet & Daily, *loc. cit.*, p. 73 (1939).

*Microcystis incerta* Lemm.

Eddy 1931B, p. 460, as *Microcystis incerta:* **Pulaski,** Wetaug—sink-hole pond (July).

## SYNECHOCYSTIS Sauvageau, 1892

S. AQUATILIS Sauv. Geitler in Rab., Kryptog.-fl. Deutsch. 14: 270 (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—spring-fed stream N. of (Aug.).

Order: CHAMAESIPHONALES
Family: PLEUROCAPSACEAE

PLEUROCAPSA Thuret, 1885

P. VARIA (A. Br.) D. & D. Daily, Amer. Midl. Nat. 27: 644. f. 36, 39 (1942).

Drouet & Daily, Field Mus.: **Cook,** Chicago—on wet, shaded cement walks and subaerial on sides of water tank in greenhouses at the Univ. of Chicago, coll. by P. D. Voth, J. M. Beal and F. Drouet Oct. 5, 1938.

Order: HORMOGONALES
Suborder: HOMOCYSTINEAE
Family: OSCILLATORIACEAE

LYNGBYA Agardh, 1824

L. AERUGINEO-CAERULEA (Kuetz.) Gom. Geitler in Rab., Kryptog.-fl. Deutsch. 14: 1062. f. 670 f, g (1932).

*Oscillaria aerugineo-caerulea* Kuetz.

Transeau 1913B, p. 71: **Clark,** Martinsville—drainage ditch N.W. of (Oct.). Johnson & Atwell 1890, p. 21, as *Oscillaria aerugineo-caerulea:* **Cook,** Evanston—aquaria (Mar.).

L. AESTUARII (Mert.) Liebm. ex Gom. Geitler, *loc. cit.*, p. 1052. f. 666 (1932).

Transeau 1913B, p. 71: **Clark,** Casey—pond (July, Nov.). **Clay**—pond (May). **Coles,** Charleston—ponds (all months); laboratory aquaria (Oct., Nov.). **Douglas,** Arthur—pond (July). Britton: **Lake,** Lake Zurich—in Lake Zurich, Aug. 24, 1939, #916 (*fide* Dr. F. Drouet). Transeau 1913B, p. 71: **Lawrence,** Lawrenceville—gravel pit (May). **Montgomery,** Coffeen—pond (May).

L. BIRGEI G. M. Smith. Geitler, *loc. cit.*, p. 1048. f. 663 (1932).

Britton; Drouet—Field Mus.: **Lake,** Fox Lake—N. side of Lake Marie, channel between Lake Marie and Channel Lake, Channel and Bluff Lakes, Sept. 14, 1939, #1032, 1033, 1035, 1048; Wauconda—Bangs Lake, coll. by E. H. Ahlstrom, June 5, 1932.

L. DIGUETII Gom. Geitler, *loc. cit.*, p. 1058. f. 656e (1932).

Britton: **Cook,** Sag Bridge—small pond and swamp, Sept. 8, 1939, #1021 (*fide* Dr. F. Drouet).

L. PUTEALIS Mont. ex Gom. Geitler, *loc. cit.*, p. 1063. f. 675b (1932).

Drouet, Field Mus.: **Cook,** Chicago—in shark tank, Shedd Aquarium, coll. by J. A. Steyermark and Mr. Chute, Aug. 1, 1939.

L. TAYLORII Drouet & Strickl. Strickland, Amer. Jour. Bot. 27: 631. f. 1 (1940).

Britton: **Lake,** Fox Lake—channel entering east side of Grass L., Aug. 25, 1939, #971 (*fide* Dr. F. Drouet).

L. VERSICOLOR (Wart.) Gom. Geitler in Rab., Kryptog.-fl. Deutsch. 14: 1059. f. 656f (1932).

Forbes & Richardson 1913, pp. 520, 531; **Bureau,** Spring Valley —Illinois River (Oct.). **La Salle,** Marseilles—Illinois River (Aug., Oct.).

## MICROCOLEUS Desmazieres, 1823

M. ACUTISSIMUS Gard. Geitler, *loc. cit.*, p. 1138. f. 744a (1932).

Drouet, Field Mus.: **Cook,** Chicago—on soil in a moist depression, 92nd St. and Stony Island Ave., coll. by P. D. Voth and F. Drouet, Sept. 24, 1938. **Dupage,** Tiedtville—on bare soil in high open wood, coll. by D. Richards and F. Drouet, Apr. 22, 1939.

M. LACUSTRIS (Rab.) Farl. ex Gom. Geitler, *loc. cit.*, p. 1142. f. 749, 750a (1932).

Drouet, Field Mus.: **Cook,** Chicago—on moist soil in greenhouse at Univ. of Chicago, coll. by P. D. Voth, J. M. Beal and F. Drouet, Oct. 5, 1938. **Dupage**—on path in Black Partridge Woods; coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938. **Lake,** Waukegan—in a depression in sand dunes at Dunes Park, coll. by F. Drouet, P. C. Standley and J. A. Steyermark, June 14, 1940.

M. VAGINATUS (Vauch.) Gom. Geitler, *loc. cit.*, p. 1136. f. 741 (1932).

Drouet, Field Mus.: **Cook,** Chicago—on soil in a moist depression, 92nd St. and Stony Island Ave., coll. by P. D. Voth and F. Drouet, Sept. 24, 1938; in shallow water of lagoon in Jackson Park, coll. by D. Richards and L. J. King, Oct. 18, 1940; Lemont—on path near spring in quarry at E. edge of, coll. by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939. **Dupage**—on mud flats along Illinois River opposite Lemont, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938; Tiedtville—on bare soil in high open woods, coll. by D. Richards and F. Drouet, Apr. 22, 1939.

## OSCILLATORIA Vaucher, 1803

O. ACUMINATA Gom. Geitler, *loc. cit.*, p. 978. f. 603d (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (May, June).

O. AGARDHII Gom. Geitler, *loc. cit.*, p. 974. f. 618k, 621 (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (Feb.). Transeau 1913B, p. 70: **Clark,** Casey—reservoir ponds (Sept.). **Coles,** Charleston—pond (Sept., Nov.). Drouet, Field Mus.: **Cook,** Chicago—waterbloom on quarry pool at 92nd St. and Stony Island Ave., coll. by P. D. Voth and F. Drouet, Sept. 24, 1938.

O. AMOENA (Kuetz.) Gom. Geitler, *loc. cit.*, p. 969. f. 603a, 611k (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (July).

O. ANIMALIS Ag. ex Gom. Geitler, *loc. cit.*, p. 978. f. 603a (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (July).

O. ARTICULATA Gard. Geitler, *loc. cit.*, p. 963. f. 614 (1932).

Drouet, Field Mus.: **McHenry,** Crystal Lake—on *Potomogeton sp.* in Crystal Lake, coll. by H. C. Benke, June 17, 1939.

O. CHALYBEA Mert. ex Gom. Geitler, *loc. cit.*, p. 956. f. 608b (1932). *Oscillatoria subsalsa* Ag.

Solheim & Penfound 1928, p. 86, as *O. subsalsa:* **Champaign,** Urbana—small stream N. of (July–Oct.).

O. CHLORINA Kuetz. ex Gom. Geitler, *loc. cit.*, p. 951. f. 611c (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (May, June). Johnson & Atwell 1890, p. 21: **Cook,** Evanston—in a small stream.

O. CURVICEPS Ag. ex Gom. DeToni, Sylloge Algarum 5: 157 (1907); Geitler in Rab., Kryptog.-fl. Deutsch. 14: 947. f. 598e (1932). *Oscillaria froelichii* var. *viridis* Zell.

Solehim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (Apr., May). Johnson & Atwell 1890, p. 21, as *Oscillaria froelichii* var. *viridis:* **Cook,** Evanston—in a small stream (Mar.).

O. FORMOSA Bory ex Gom. Geitler, *loc. cit.*, p. 970. f. 619b (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (May, Aug.). Transeau 1913B, p. 70: **Clark,** Casey pond (Oct.); **Coles,** Charleston—laboratory aquarium (Apr.). Britton: **Cook,** Palos Park—swamp, Sept. 8, 1939, #975 (*fide* Dr. F. Drouet).

O. GEMINATA Menegh. ex Gom. Geitler, *loc. cit.*, p. 965. f. 611i (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (Apr.–Aug., Oct.).

O. LIMOSA Ag. ex Gom. Geitler, *loc. cit.*, p. 944. f. 598d (1932).

Johnson & Atwell 1890, p. 21 (Cook). Forbes & Richardson 1913, pp. 502, 503, 506, 513, 520, 535 (Grundy, LaSalle, Peoria, Will). Transeau 1913B, p. 70 (Coles). Solheim & Penfound 1928, p. 86 (Champaign). Agersborg 1930, pp. 103, 104, 106–110, 113, 114 (Macon). Drouet, Field Mus. (Cook). Transeau (Clark, Lawrence).

**Champaign,** Urbana—small stream N. of (Feb.–June, Nov., Dec.). **Clark,** Casey—pond (Oct.); Westfield—ditch (June). **Coles,** Ashmore—creek and cut-offs (Oct.); Charleston, Kickapoo Creek and other small streams, ponds and ditches (all

months); Wrightsville—small stream and pond (Apr., June). **Cook,** Evanston—waste of waterworks (Apr.). **Grundy,** Dresden Heights—DesPlaines River (Aug., Sept.); Morris—Illinois River (July). **La Salle,** Marseilles—Illinois River (Aug., Oct.). **Lawrence,** Pinkstaff—bayou of Bee Branch Creek (Dec.). **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.). **Peoria,** Chillicothe—Illinois River (Sept., Oct.). **Will,** Lockport—Sanitary Canal and the DesPlaines River (Sept.).

O. ORNATA Kuetz. ex Gom. Geitler, *loc. cit.*, f. 599a (1932).
Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (Apr., June). Britton: **Cook,** Sag Bridge—quarry pond, Sept. 8, 1939, #1007 (*fide* Dr. F. Drouet).

O. PRINCEPS Vauch. ex Gom. Geitler, *loc. cit.*, p. 947. f. 598a, 601c–g (1932).
Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (Mar., May–Dec., Feb.). Transeau: **Clark,** Casey—pond (May, July, Sept.). Transeau 1913B, p. 71; 1913C, p. 36: **Coles,** Charleston—ponds, small streams, pools cut-offs and laboratory aquaria (Apr.–Dec.). Eddy 1927B, pp. 208, 219; Britton: **Cook,** Chicago—Lake Michigan (Oct.); Sag Bridge—swamp, Sept. 8, 1939, #988 (*fide* Dr. F. Drouet). Transeau: **Lawrence,** Pinkstaff—spring-fed pond 3 miles E. of (July). Britton: **McHenry,** Woodstock—small pond E. of, July 7, 1939, #424; small stream draining into Defiance Lake, Aug. 24, 1939, #934. Transeau: ? **County**—Sangamon River (Aug.).

O. PROLIFICA (Grev.) Gom. Geitler, *loc. cit.*, p. 973. f. 620c (1932).
Agersborg 1930, pp. 103, 104, 106, 108–110, 113, 114: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

O. SANCTA (Kuetz.) Gom. Geitler, *loc. cit.*, p. 943. f. 598c (1932).
Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (June). Drouet, Field Mus.: **Cook,** Chicago—in tanks and on wet soil and gravel in greenhouses at the Univ of Chicago, coll. by P. D. Voth, J. M. Beal and F. Drouet, Oct. 5, 1938; from tank in Univ. of Chicago greenhouse, coll. by L. J King, Jan. 20, 1941.

O. SPLENDIDA Grev. ex Gom. DeToni, Sylloge Algarum 5: 173 (1907); Geitler, *loc. cit.*, p. 972. f. 611m–o, 620d–f (1932).

*Oscillaria gracillima* Kuetz.
Transeau 1913B, p. 71: **Coles,** Embarrass—stone-quary pond (Mar.). Johnson & Atwell 1890, p. 173, as *Oscillaria gracillima;* Drouet, Field Mus.: **Cook,** Chicago—aquarium, coll. by C. Shoop Steyermark, May 1940; Evanston (?)—prairie ditches (Mar.). Drouet, Field Mus.: **Lake,** Volo—floating in small lake in center of bog 2 miles N.W. of, coll. by G. D. Fuller and D.

Richards, June 18, 1940. Forbes & Richardson 1913, p. 535: **Peoria,** Chillicothe—Illinois River (Sept., Oct.).

O. TENUIS Ag. ex Gom. Geitler, *loc. cit.*, p. 959. f. 611f–g (1932). Including material collected by E. N. Transeau and placed in the Herbarium of the New York Botanical Garden (#927) as *O. formosa* Bory (*fide* Dr. F. Drouet).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (Feb.–June). Transeau; Drouet, Field Mus.: **Coles,** Charleston—small stream (Sept.); Mattoon—swamp N. of (Apr.). Drouet, Field Mus.: **Lake,** Waukegan—pond near the railroad station at Dunes Park, coll. by F. Drouet, P. C. Standley and J. A. Steyermark, June 14, 1940.

O. TENUIS var. NATANS Gom. DeToni, Sylloge Algarum 5: 168 (1907); Geitler, *loc. cit.*, p. 959 (1932).

*Oscillaria natans* Kuetz.

Johnson & Atwell 1890, p. 21, as *Oscillaria natans:* **Cook,** Evanston (?)—prairie ditches (Mar.).

## PHORMIDIUM Kuetzing, 1843

P. AMBIGUUM Gom. Geitler, *loc. cit.*, p. 1015. f. 647e (1932).

Transeau 1913B, p. 71: **Coles,** Ashmore—from shell of a live snapping-turtle in stream S. of (May).

P. AUTUMNALE (Ag.) Gom. Geitler, *loc. cit.*, p. 1026. f. 652k–l, 653a (1932); DeToni, Sylloge Algarum 5: 252 (1907).

*Oscillaria antliaria* Juerg.

Transeau: **Coles,** Charleston—(Jan.). Johnson & Atwell 1890, p. 21, as *Oscillaria antliaria:* **Cook,** Bowmanville—(July). Drouet, Field Mus.: **La Salle,** Starved Rock State Park—in water running from Salt Well, coll. by D. Richards, P. D. Voth and D. T. Ries, Mar. 22, 1940.

P. FAVOSUM (Bory) Gom. Geitler, *loc. cit.*, p. 1024. f. 652a–b (1932). Drouet, Field Mus.: **Dupage,** Black Partridge Woods—in a spring, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938.

P. FOVEOLARUM Gom. Geitler, *loc. cit.*, p. 999. f. 636c–d (1932).

Transeau 1913B, p. 71, as *P. foveolatum:* **Coles,** Charleston—on submerged water plants in lily pond (Sept.).

P. INCRUSTATUM var. CATARACTARUM (Naeg.) Gom. Geitler in Pascher, Suesswass.-fl. Deutsch. 12: 386. f. 490 (1925).

Field Mus.: **St. Clair,** Falling Spring—forming a firm calcareous coating on wet rocks, coll. by F. S. Collins, P. B.-A., Mar. 29, 1918.

P. INUNDATUM Kuetz. ex Gom. Geitler in Rab., Kryptog.-fl. Deutsch. 14: 1019. f. 649e (1932).

Baker 1922, pp. 80, 82–84, 86, 87: **Champaign,** Urbana—Boneyard Creek, Salt Fork and Spoon River. Transeau 1913B, p. 71: **Clark,** Oilfield—pond about 1 mile S.W. (Apr.).

P. MINNESOTENSE (Tild.) Drouet. Drouet, Field Mus. Nat. Hist., Bot. Ser. 20: 136 (1942).

*Oscillatoria minnesotensis* Tild.

Solheim & Penfound 1928, p. 86, as *Oscillatoria minnesotensis:* **Champaign,** Urbana—small stream N. of (May, Aug.). Drouet, Field Mus.: **Cook,** Chicago—roadside ditch near Calumet Lake, coll. by King and Young, July 1941.

P. SUBFUSCUM (Ag.) Kuetz. ex Gom. Geitler in Rab., Kryptog.-fl. Deutsch. 14: 1022. f. 652d–g (1932).

Drouet, Field Mus.: **Cook,** Lemont—in seepage at W. end of quarry, coll. by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939.

P. TENUE (Menegh.) Gom. Geitler, *loc. cit.*, p. 1004. f. 642d–e (1932). Drouet, Field Mus.: **La Salle,** Starved Rock State Park—attached to sides of Salt Well, coll. by D. Richards, P. D. Voth and D. T. Ries, Mar. 22, 1940.

P. UNCINATUM (Ag.) Gom. Geitler, *loc. cit.*, p. 1025. f. 652h–i (1932). Transeau 1913B, p. 71: **Clark,** Casey—pond (July). **Coles,** Charleston—ponds, creeks, bayous, polls and ditches (Jan., Apr., May, Sept., Nov.); laboratory aquarium (Apr.). Drouet, Field Mus.: **Cook,** Chicago—in pool of standing water in lane near quarry at 92nd St. and Stony Island Ave., coll. by P. D. Voth and F. Drouet, Sept. 24, 1938; Lemont—in seepage on limestone rocks in old quarry, coll. by D. Richards and F. Drouet, Apr. 15, 1939, and by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939. Transeau: **Douglas,** Arthur—pond and pool (May, Aug.). Forbes & Richardson 1913, pp. 506, 520: **Grundy,** Dresden Heights—DesPlaines River (Aug., Sept.). **La Salle,** Marseilles—Illinois River (Aug., Oct.).

## SCHIZOTHRIX Kuetzing, 1843

S. CALCICOLA (Ag.) Gom. Geitler, *loc. cit.*, p. 1083. f. 692 (1932).

Drouet, Field Mus.: **Cook,** Lemont—in seepage water on limestone rocks along a small stream, coll. by D. Richards and F. Drouet, Apr. 15, 1939.

S. PURPURASCENS (Kuetz.) Gom. Geitler, *loc. cit.*, p. 1103. f. 709 (1932).

Drouet, Field Mus.: **Cook,** Willow Springs—on soil by Route 4A, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938.

S. RIVULARIS (Wolle) Drouet. Drouet, Field Mus. Nat. Hist., Bot. Ser. 20: 131 (1942).

*Lyngbya phormidium* var. *rivularis* Wolle; *Symploca muscorum* var. *rivularis* (Wolle) Tilden.

Johnson & Atwell 1890, p. 21, as *Lyngbya phormidium* var. *rivularis;* Tilden 1910, p. 133, as *Symploca muscorum* var. *rivularis:* **Cook,** "Big Woods"—in running water (Apr.).

## SPIRULINA Turpin, 1827

S. GOMONTIANA (Setch.) Geitl. Geitler in Rab., Kryptog.-fl. Deutsch. 14: 924 (1932).

*Arthrospira gon ontiana* Setch.

Transeau 1913B, p. 71, as *Arthrospira gomontiana:* **Coles,** Charleston—ponds (Mar.–June); aquaria (Oct.).

S. JENNERI (Stiz.) Geitl. Geitler, *loc. cit.*, f. 590c (1932).

Britton: **Lake,** Lake Zurich—in Lake Zurich, Aug. 24, 1939, #913, 916 (*fide* Dr. F. Drouet).

S. MAJOR Kuetz. ex Gom. Geitler, *loc. cit.* (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (Apr.–July). Transeau 1913B, p. 71: **Clark,** Martinsville—ditch (Oct.). **Coles,** Charleston—ponds (Mar.–Nov.). **Jasper,** Newton—on moist soil (Aug.).

S. NORDSTEDTII Gom. Geitler, *loc. cit.*, p. 930 (1932).

Solheim & Penfound 1928, p. 86: **Champaign,** Urbana—small stream N. of (May).

## SYMPLOCA Kuetzing, 1843

S. MUSCORUM (Ag.) Gom. Geitler, *loc. cit.*, p. 1122. f. 730 (1932).

Drouet, Field Mus.: **Coles,** Charleston—coll. by E. N. Transeau, Apr. 26, 1911 (as *Lyngbya aerugineo-coerulea*, F. S. Collins *scripsit*). **Cook,** Chicago—on soil in flower pots in Univ. of Chicago greenhouse, coll. by D. Richards, Sept. 19, 1939; Lemont—on wet soil by pool in quarry at E. edge of, coll. by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939; Willow Springs—on soil in path by lake E. of, coll. by P. C. Standley, J. A. Steyermark, and F. Drouet, Oct. 18, 1938. **Dupage,** Lisle—on moist rocks in drain of lily pond at Morton Arboretum, coll. by F. Drouet and J. A. and C. Steyermark, Oct. 27, 1940.

## Suborder: HETEROCYSTINEAE
## Family: NOSTOCACEAE

## ANABAENA Bory, 1822

A. CATENULA (Kuetz.) B. & F. Geitler, *loc. cit.*, p. 894 (1932).

Transeau 1913B, p. 72: **Clark,** Casey—pond (Oct.). **Coles,** Charleston, Lerna—ponds (May, July).

A. CIRCINALIS Rab. ex B. & F. Geitler, *loc. cit.*, p. 891. f. 572a (1932). Galtsoff 1924, p. 399 (Hancock, Henderson). Eddy 1927B, pp. 214, 218 (Cook); 1931B, p. 460 (Pulaski); 1934, pp. 385, 391, 400, 403 (Cook, Lake, Macon, McHenry, Whiteside). Britton (Cook, Lake, McHenry).

**Cook,** Argonne Forest Preserve—Maple Lake, Sept. 8, 1939, #986; Chicago—Lake Michigan (July); Sag Bridge—small pond, Sept. 8, 1939, #1015. **Hancock, Henderson,** Mississippi River (July). **Lake,** Antioch—channel between Lake Marie and Channel Lake, Sept. 14, 1939, #1033 (*fide* Dr. F. Drouet), Bluff Lake, Sept. 14, 1939, #1048; Fox Lake—in Fox Lake, Petite Lake, Aug. 25, 1939, #950, 954, 956; Long Lake—in Long Lake ("summer"); Volo—Fish Lake, Aug. 24, 1939, #935. **Macon,** Decatur—in Lake Decatur, Sangamon River (June–Sept.). **McHenry**—Fox River; Ridgefield—pond about 1 mile N.W., July 7, 1939, #417. **Pulaski,** Wetaug—sink-hole ponds (July–Sept.). **Whiteside**—Rock River.

A. FLOS-AQUAE (Lyngb.) Breb. ex B. & F. Geitler, *loc. cit.*, p. 890. f. 571a–b (1932).

Galtsoff 1924, pp. 399, 402, 405: **Carroll**—Mississippi River (July, Sept.). Transeau 1913B, p. 72: **Clark,** Casey—reservoir pond (Sept.). Britton: **Cook,** Argonne Forest Preserve—Maple Lake, Sept. 8, 1939, #986 (*fide* Dr. F. Drouet). Transeau, *loc. cit.* (1913B): **Cumberland,** Greenup—pond (July). Galtsoff, *loc. cit.* (1924): **Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside**—Mississippi River (July–Sept.).

A. INAEQUALIS (Kuetz.) B. & F. Geitler, *loc. cit.*, p. 896. f. 578 (1932). *Anabaena laxa* (Rab.) A. Br.

Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (Apr.). Transeau 1913B, p. 72, also as *A. laxa:* **Clark,** Casey—prairie pond (Apr.). **Coles,** Charleston—ponds (May, June, Oct., Nov.). Britton: **Cook,** Sag Bridge—small pond, Sept. 8, 1939, #996 (*fide* Dr. F. Drouet). Transeau, *loc. cit.* (1913B): **Douglas,** Arthur—pond (July).

A. OSCILLARIOIDES Bory ex B. & F. Geitler, *loc. cit.*, p. 886. f. 567e (1932).

Tilden 1910, p. 194; Drouet, Field Mus.: **Cook,** Evanston—Willow Springs, in shallow water of lake E. of, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938.

A. PLANCTONICA Brunnth. Geitler, *loc. cit.*, p. 881. f. 562 (1932).

Galtsoff 1924, pp. 399, 405: **Carroll, Henderson, Jo Daviess, Mercer**—Mississippi River (July, Aug.). Eddy 1931B, pp. 454, 460: **Pulaski,** Wetaug—sink-hole ponds (July–Sept., Dec.). Galtsoff, *loc. cit.* (1924): **Rock Island, Whiteside**—Mississippi River (July, Aug.).

A. SPIROIDES Kleb. Geitler, *loc. cit.* (1932).
Galtsoff 1924, pp. 399, 402, 405: **Carroll, Henderson, Jo Daviess**—Mississippi River (July–Sept.). Eddy 1934, p. 400: **Lake,** Long Lake—in Long Lake ("summer"). Kofoid 1908, p. 20: **Mason,** Havana—Illinois River (June–Oct.). Galtsoff, *loc. cit.* (1924): **Mercer,** New Boston—Sturgeon Bay, Mississippi River (July, Aug.). **Rock Island, Whiteside**—Mississippi River (July–Sept.).

A. SPIROIDES var. CRASSA Lemm. Geitler, *loc. cit.*, p. 882. f. 563 (1932).
Eddy 1931B, pp. 454, 460: **Pulaski,** Wetaug—sink-hole ponds (July–Sept.).

A. VARIABILIS Kuetz. ex B. & F. Geitler, *loc. cit.*, p. 876. f. 558 (1932).
Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (Apr., July, Aug.).

## APHANIZOMENON Morren, 1838

A. FLOS-AQUAE (L.) Ralfs ex B. & F. Geitler, *loc. cit.*, p. 824. f. 524 (1932).
Galtsoff 1924, pp. 399, 402: **Carroll**—Mississippi River (July, Sept.). **Hancock**—Lake Keokuk, Mississippi River (July). **Henderson, Jo Daviess**—Mississippi River (July–Sept.). Britton: **Lake,** Volo—Fish Lake, Aug. 24, 1939, #935 (*fide* Dr. F. Drouet); Wauconda—Slocum Lake, Aug. 24, 1939, #926. Galtsoff, *loc. cit.* (1924): **Mercer**—Mississippi River (Aug.). Eddy 1931B, p. 460: **Pulaski,** Wetaug—sink-hole pond (July, Sept., Dec.). Galtsoff, *loc. cit.* (1924): **Rock Island, Whiteside**—Mississippi River (July–Sept.).

A. OVALISPORUM Forti. Geitler, *loc. cit.*, p. 826. f. 525 (1932).
Britton: **Cook,** Sag Bridge—small pond, Sept. 8, 1939, #1015 (*fide* Dr. F. Drouet).

## CYLINDROSPERMUM Kuetzing, 1843

C. LICHENIFORME (Bory) Kuetz. ex B. & F. Geitler, *loc. cit.*, p. 821. f. 520e (1932).
Drouet, Field Mus.: **Cook,** Lemont—on moist soil by pool in quarry at E. edge of, coll. by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939.

C. MAJUS Kuetz. ex B. & F. Geitler, *loc. cit.*, p. 815. f. 520b (1932).
Drouet, Field Mus.: **Cook,** Chicago—on moist soil in greenhouse at Univ. of Chicago, coll. by P. D. Voth, J. M. Beal and F. Drouet, Oct. 5, 1938.

C. MUSCICOLA Kuetz. ex B. & F. Geitler, *loc. cit.*, p. 822. f. 520d (1932).
Transeau 1913B, p. 72: **Coles,** Charleston—pond (May). Drouet, Field Mus.: **Cook,** Lemont—on wet soil by pool in quarry at E. edge of, coll. by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939. Transeau: **Moultrie,** Sullivan—artificial pond (May).

## NODULARIA Mertens, 1822

N. HARVEYANA var. SPHAEROCARPA (B. & F.) Elenk. Geitler, *loc. cit.*, p. 865. f. 552 (1932).

*Nodularia sphaerocarpa* B. & F.

Transeau 1913B, p. 71, as *N. sphaerocarpa:* **Coles,** Chareston—floating masses in pool 4 miles N. of (May).

N. SPUMIGENA Mert. Geitler, *loc. cit.*, p. 866 (1932).

Transeau: **Coles,** Lerna—pond (May).

## NOSTOC Vaucher, 1803

N. CARNEUM Ag. ex B. & F. Geitler, *loc. cit.*, p. 839. f. 530 (1932).

Transeau 1913B, p. 71: **Coles,** Embarrass—shallow pool on rocks at limestone quarry (Nov.).

N. ELLIPSOSPORUM Rab. ex B. & F. Geitler, loc. cit., p. 841. f. 533 (1932).

Drouet, Field Mus.: **Cook,** Chicago—Univ. of Chicago greenhouse, subaerial on sides of watertank, coll. by P. D. Voth, J. M. Beal and F. Drouet, Oct. 5, 1938; floating in tank, coll. by D. Richards, Feb. 18, 1939.

N. MUSCORUM Ag. ex B. & F. Geitler, *loc. cit.*, p. 844. f. 535 (1932).

Transeau 1913B, p. 71: **Coles,** Charleston—pools ("summer").

N. PRUNIFORME (L.) Vauch. ex B. & F. Geitler, *loc. cit.*, p. 860. f. 548 (1932).

Forbes 1883A, p. 495; Atwell 1889, p. 291; Johnson & Atwell 1890, p. 21; Johnson (Field Mus.); Tilden 1910, p. 178: **Cook,** Evanston—Lake Michigan (Aug.–Apr.).

N. SPONGIAEFORME Ag. ex B. & F. Geitler, *loc. cit.*, p. 839. f. 531 (1932).

Drouet, Field Mus.: **Cook,** Evanston—coll. by L. N. Johnson.

N. VERRUCOSUM Vauch. ex B. & F. Geitler, *loc. cit.*, p. 854. f. 43,542,-543 (1932).

Johnson & Atwell 1890, p. 21; Tilden 1910, p. 179: **Cook,** Bowmanville—(July).

## Family: SCYTONEMATACEAE

## PLECTONEMA Thuret, 1875

P. NOSTOCORUM Born. ex Gom. Geitler, *loc. cit.*, p. 692. f. 445 (1932).

Britton: **Cook,** Palos Park—small pond at Palos Golf Club, Sept. 8, 1939, #1005 (*fide* Dr. F. Drouet).

P. TOMASINIANUM Born. ex Gom. Geitler, *loc. cit.*, p. 688. f. 442 (1932).

Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (June).

SCYTONEMA Agardh, 1824

S. CINCINNATUM (Kuetz.) Thur. Bornet & Flahault, Ann. Sci. Nat. VII. Bot. 5: 89 (1887).
Johnson & Atwell 1890, p. 20; Tilden 1910, p. 214: **Cook,** Lakeside —(May).

S. OCELLATUM Lyngb. ex B. & F. Geitler in Rab., Kryptog.-fl. Deutsch. 14: 763. f. 488 (1932).
Drouet, Field Mus.: **Cook,** Lemont—on clay bank of creek above quarry at E. edge of, coll. by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939.

S. TOLYPOTRICHOIDES Kuetz. ex B. & F. Geitler, *loc. cit.*, p. 779. f. 500 (1932).
Britton: **Lake,** Lake Zurich—in Lake Zurich, Aug. 24, 1939, #913 (*fide* Dr. F. Drouet).

TOLYPOTHRIX Kuetzing, 1843

T. TENUIS Kuetz. ex B. & F. Geitler, *loc. cit.*, p. 716. f. 458a (1932). Transeau 1913b, p. 72; 1916, p. 125: **Clark,** Oilfield—wet weather pools (May). **Coles,** Ashmore, Charleston—ponds and small stream (Apr.–Oct.). Britton: **Lake,** Lake Zurich—in Lake Zurich, Aug. 24, 1939, #916 (*fide* Dr. F. Drouet).

Family: STIGONEMATACEAE

STIGONEMA Agardh, 1824

S. MINUTUM (Ag.) Hass. Geitler, *loc. cit.*, p. 513. f. 313–317 (1932). Transeau: **Coles,** Charleston—pond (May).

Family: RIVULARIACEAE

AMPHITHRIX Kuetzing, 1843; Bornet & Flahault, 1886

A. JANTHINA (Mont.) B. & F. Geitler, *loc. cit.*, p. 572. f. 572 (1932). Drouet, Field Mus.: **Dupage,** Black Partridge Woods—in stream, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938.

CALOTHRIX Agardh, 1824

C. KAWRAISKYI Schmidle. Geitler, *loc. cit.*, p. 619 (1932). Transeau 1913B, p. 72: **Coles,** Charleston—epiphytic on green algae in ponds (July, Sept.).

C. STAGNALIS Gom. Geitler, *loc. cit.*, p. 603. f. 377 (1932). Transeau 1913B, p. 72; 1913C, p. 33; 1916, p. 124: **Coles,** Charleston—ponds (July, Sept.).

### GLOEOTRICHIA Agardh, 1842

G. NATANS Rab. ex B. & F. Geitler, *loc. cit.*, p. 639. f. 406, 407 (1932). *Rivularia natans* (Hedw.) Welw. ex B. & F.

Transeau 1913B, p. 72; 1913C, p. 34; 1916, p. 124, as *Rivularia natans:* **Coles,** Charleston—ponds (May–Dec.). Britton: **Cook,** Palos Park—small pond at Palos Golf Club, Sept. 8, 1939, #1005 (*fide* Dr. F. Drouet). Transeau: **Jasper,** Newton—pond (Aug.).

G. PISUM Thuret ex B. & F. Geitler, *loc. cit.*, p. 632. f. 401 (1932).

Harper, Field Mus.: **Adams,** Payson—from the herbarium of Edward T. and Susan A. Harper, coll. Sept. 3, 1893. Britton: **Lake,** Antioch—in Channel Lake, Sept. 14, 1939, #1037 (*fide* Dr. F. Drouet).

### RAPHIDIOPSIS Fritsch, 1929

R. CURVATA Fritsch. Geitler, *loc. cit.*, p. 658. f. 420 (1932).

Britton; Drouet, Field Mus.: **Cook,** Chicago—lagoon in Jackson Park, coll. by J. M. Beal, Aug. 12, 1939; Sag Bridge—small pond, Sept. 8, 1939, #1015 (*fide* Dr. F. Drouet).

## Phylum: RHODOPHYTA
### Class: RHODOPHYCEAE
#### Order: NEMALIONALES
##### Family: BATRACHOSPERMACEAE

### BATRACHOSPERMUM Roth, 1797

B. BORYANUM Sirod. Pascher & Schiller in Pascher, Suesswass.-fl. Deutsch. 11: 186 f. 46–48 (1925).

Transeau 1913B, p. 89: **Coles,** Ashmore—Polecat Creek; Charleston—small stream (Mar., May).

##### Family: THOREACEAE

### THOREA Bory, 1808

T. RAMOSISSIMA Bory. Pascher & Schiller, *loc. cit.*, p. 165. f. 88–90 (1925).

Hedgecock & Hunter 1899, p. 425: Sangamon River.

## Phylum: CHRYSOPHYTA
### Class: XANTHOPHYCEAE
#### Order: HETEROCOCCALES
##### Family: BOTRYOCOCCACEAE

## BOTRYOCOCCUS Kuetzing, 1849

B. BRAUNII Kuetz. Tiffany, Contrib. Franz T. Stone Lab. 6: 33. pl. 14. f. 348, 349 (1934); Smith, Freshw. Alg. U. S. p. 154. f. 98 (1933).

*Ineffigiata neglecta* W. & G. S. West

Transeau 1913B, p. 79; 1913C, p. 36; 1916, p. 125, as *Ineffigiata neglecta:* **Clark,** Casey—pond (Apr., Sept.). **Coles,** Charleston—ponds and laboratory aquaria (Mar.–Nov.). Kofoid 1908, pp. 23, 24, 315: **Mason,** Havana—Illinois River (Apr.–Dec.).

B. SUDETICUS Lemm. Tiffany, *loc. cit.*, f. 350 (1934).

Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (Apr.).

## Family: OPHIOCYTIACEAE

## OPHIOCYTIUM Naegeli, 1849

O. ARBUSCULUM (A. Br.) Rab. Tiffany, *loc. cit.*, p. 34. pl. 14. f. 346 (1934).

Transeau 1913B, p. 73: **Coles,** Lerna—pond (May). Britton: **Cook,** Northbrook—small pond and swamp in Somme Forest Preserve, June 27, 1938, #113; Palos Park—swamp, Sept. 8, 1939, #975.

O. CAPITATUM Wolle. Tiffany, *loc. cit.*, p. 35. pl. 14. f. 342 (1934).

Britton: **Cook,** Schnells Corner—pond in Elk Grove Forest Preserve, June 22, 1939, #324. Kofoid 1908, pp. 23, 26: **Mason,** Havana—Illinois River (Apr.–Nov.).

O. COCHLEARE A. Br. Tiffany, *loc. cit.*, f. 345 (1934).

Transeau 1913B, p. 73: **Clark,** Casey—pond (May). **Coles,** Charleston—ponds, ditches, and laboratory aquaria (Feb., Mar., Oct., Dec.). Britton: **Cook,** Evanston—E. Fork of N. Branch of the Chicago River at Golf Road, Apr. 23, 1939, #232; Glenview—swamp and intermittent pond about 1½ miles W., May 12, 1938, #56, 58; Morton Grove—small pond about 1 mile N.W., May 10, June 23, 1938, #43, 77; Northbrook—swamp on Landwehr Road about 3 miles S.W., and small pond and swamp on Techny Road just E. of Landwehr Road, May 12, 1938, #60, 62; small ponds and swamps in Somme Forest Preserve, May 15, 1938, #65, 66, May 8, 1939, #240, 243, 248; Palos Park—swamp, July 14, 1939, #556; Sag Bridge—small pond and extensive swamp, Sept. 8, 1939, #1021. Transeau: **Douglas,** Tuscola—pond (May). Britton: **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #255–257; Everett—small swamp about ¾ mile S.W., May 15, 1938, #70; Libertyville—swamp, July 14, 1938, #120; Volo—bog at Tamarack Farm, June 3, 1939, #294.

O. GRACILIPES Rab. Pascher, Suesswass.-fl. Deutsch. 11: 81 (1925).

Transeau 1913B, p. 73: **Coles,** Charleston—ponds and pools ("colder months").

O. MAJUS Naeg. Pascher, *loc. cit.*, p. 76. f. 58, 59 (1925).
Transeau: **Coles,** Charleston—pond (May).

O. PARVULUM (Perty) A. Br. Tiffany, Contrib. Franz T. Stone Lab. 6: 35. pl. 14. f. 344 (1:34).
Transeau 1913B, p. 73: **Clark,** Casey—pond (Oct., Nov.). **Coles,** Charleston—ponds and pools (Apr., May). Britton 1940, p. 71: **Cook,** Evanston—E. Fork of N. Branch of the Chicago River at Golf Road, Apr. 23, 1939, #232; Glenview—swamps and intermittent ponds about 1½ miles W., May 12, June 23, 1938, Apr. 7, 1939, #53, 55–57, 97; Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43; Northbrook—small ponds and swamps on Techny Road just east and west of Landwehr Road, May 12, 1938, #62, 63, swamp and pond about 3 miles S.W., May 12, 1938, #64, small ponds and swamps in Somme Forest Preserve, May 15, June 27, 1938, May 8, 1939, #66, 112, 240, 241, 243, 248. Britton: **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #255–257; Highwood—small pond, May 15, 1938, #73.

## Order: HETEROTRICHALES
## Family: TRIBONEMATACEAE

### TRIBONEMA Derbes & Solier, 1856

T. BOMBYCINUM (Ag.) Derb. & Sol. Hazen, Mem. Torr. Bot. Club 11: 184. pl. 25, f. 1-3 (1902)
*Conferva bombycina* Ag.
Transeau 1913B, p. 73; 1916, p. 124, as *Conferva bombycina* (Champaign, Clark, Coles, Cumberland, Jasper, Lawrence, Montgomery). Solheim & Penfound 1928, p. 88 (Champaign). Britton 1940, p. 71, as *T. viride* Pascher (Cook). Britton (Kankakee, Will).

**Champaign,** Urbana—pond and small stream (Mar., Apr.). **Clark,** Casey—pools, ditches, small ponds and streams (Apr., May). **Coles,** Ashmore—pond and small stream (Apr., May); Charleston—ponds, pools, ditches, swamps, draintiles, and small streams (all months); Humboldt—ditch (Apr.); Lerna—pond and stream (May); Mattoon—swamp (Apr.). **Cook,** Glenview—small pond and swamp about 1½ miles W., Apr. 7, 1939, #228; Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43; Niles—shallow intermittent pond on Dempster St. at Milwaukee Ave., Apr. 2, 1938, #1. **Cumberland,** Greenup—pond and ditches (May, July, Nov.). **Jasper,** Rose Hill—small stream (Apr.). **Kankakee,** Kankakee—in slough along Route 49A about 5 miles N., Apr. 18, 1938, #5. **Lawrence,** Pinkstaff—stream 3½

miles E. (Oct.). **Montgomery,** Coffeen—pond (May). **Will**—ditch on Route 30 about 5 miles S.E. of Aurora, Apr. 18, 1938, #8.

T. BOMBYCINUM var. TENUE (Haz.) Tiff. Hazen, *loc. cit.*, p. 185. pl. 25. f. 4–6 (1902); Tiffany, p. 35. f. 340 (1934).

Transeau 1913B, p. 73: **Clark,** Casey—ponds (Apr., July, Nov.). **Coles,** Charleston, Lerna—ponds, pools, ditches, small streams, and laboratory aquaria (Feb.–May, Sept.–Dec.). **Douglas,** Arthur—ditch (May). **Jasper,** Newton—lily pond (Aug.); Rose Hill—small stream (Apr.). Britton: **Kankakee,** Kankakee—in slough along Route 49A about 5 miles N., Apr. 18, 1938, #5. Transeau: **Lawrence,** Pinkstaff—pond (Mar.). **Montgomery,** Waggoner—pond (Dec.). Britton: **Will,** Manteno—ditch about 5 miles N.W. along Route 44, Apr. 18, 1938, #6; ditch on Route 30 about 5 miles S.E. of Aurora, Apr. 18, 1938, #8.

T. MINUS (Wille) Haz. Hazen, *loc. cit.*, f. 7, 8 (1902).

*Conferva minor* Klebs

Transeau 1913B, p. 74; 1916, p. 124, as *Conferva minor:* **Champaign,** Urbana—pond (Apr.). **Clark,** Casey—ponds, ditches and small streams (Apr., May, Nov.). **Coles,** Ashmore—small stream and pools (Apr.), on rocks at mouth of spring (June, Charleston—ponds, small streams, swamps, and ditches (Jan.–June, Oct.–Dec.); Lerna—small stream and pond (May); Loxa—ditch pool (Apr.); Matoon—swamp (Apr.); Wrightsville—stream (June). Britton 1940, p. 71: **Cook,** Glenview—swamp and intermittent pond about 1½ miles W., Apr. 7, 1939, #228; Niles—shallow intermittent pond on Dempster St. at Milwaukee Ave., Apr. 2, 1938, #1. Transeau: **Cumberland,** Greenup—ditch pool (Nov.); Jewett—small stream about 4 miles N. (May). **Douglas,** Tuscola—pond (May). **Effingham,** Effingham—ditch (Dec.). **Montgomery,** Coffeen—pond (Oct.). Britton: **Will,** Manteno—ditch about 5 miles N.W. on Route 44, Apr. 18, 1938, #6; ditch on Route 30 about 5 miles S.E. of Aurora, Apr. 18, 1938, #8.

T. UTRICULOSUM (Kuetz.) Haz. Hazen, *loc. cit.*, p. 186. pl. 25. f. 9–11 (1902).

*Conferva utriculosa* Kuetz.

Transeau 1913B, p. 74; 1916, p. 124, as *Conferva utriculosa:* **Clark,** Casey—pond (Apr.). **Coles,** Charleston, Lerna—pond and pools (Mar.–Nov.). **Jackson,** Murphysboro—(July). **Lawrence,** Lawrenceville—pool (Apr.); Pinkstaff—stream 3½ miles E. of (Oct.). **Montgomery,** Coffeen—pond (May).

## Order: HETEROSIPHONALES
### Family: BOTRYDIACEAE

### BOTRYDIUM Wallroth, 1815

B. GRANULATUM Grev. Pascher in Rab., Kryptog.-fl. Deutsch. 11: 1036 (1939).

Transeau 1913B, p. 74: **Coles,** Charleston—(Oct.). Drouet, Field Mus.: **Cook**—in a fallow field along the DesPlaines River between Brookfield and Summit, coll. by Cora Shoop Steyermark, Oct. 19, 1940.

B. WALROTHII (Kuetz.). Mill. Pascher, *loc. cit.*, p. 1041. f. 881 (1939). Transeau 1913B, p. 74; 1913C, p. 36; 1916, p. 125: **Coles,** Charleston—on moist soil in school garden (Sept., Oct.).

## Class: CHRYSOPHYCEAE
## Order: CHRYSOMONADALES
## Suborder: CHROMULINEAE
## Family: MALLOMONADACEAE

### CHRYSOSPHAERELLA Lauterborn, 1896

C. LONGISPINA Lauterb. Smith, Bull. Wis. Geol. & Nat. Hist. Sur. 57(1): 69. pl. 12. f. 7, 8 (1920).

Daily 1938, p. 79: **Cook,** Evanston—Lake Michigan.

### MALLOMONAS Perty, 1852

M. ACAROIDES Perty. Pascher in Suesswass.-fl. Deutsch. 2: 39. f. 64 (1913); Smith, Freshw. Alg. U. S., p. 173 (1933).

*Mallomonas plosslii* Perty

Kofoid 1908, p. 83, as *M. plosslii:* **Mason,** Havana—Illinois River (June, July).

M. CAUDATA Iwan. Smith, Bull. Wis. Geol. & Nat. Hist. Surv. 57(1): 69. pl. 12. f. 6 (1920).

Eddy 1931B, p. 464: **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.).

M. PRODUCTA Iwan. Smith, *loc. cit.*, p. 68. pl. 12. f. 2 (1920).

Eddy 1931B, p. 463: **Pulaski,** Wetaug—sink-hole pond (Apr., Dec.).

## Suborder: ISOCHRYSIDINEAE
## Family: SYNCRYPTACEAE

### SYNCRYPTA Ehrenberg, 1833

S. VOLVOX Ehr. Pascher in Suesswass.-fl. Deutsch. 2: 43. f. 67 (1913). Kofoid 1908, pp. 67, 87, 324: **Mason,** Havana—Illinois River (Feb.–Apr., Sept., Nov.).

## Family: SYNURACEAE

### SYNURA Ehrenberg, 1838

S. UVELLA Ehr. Tiffany, Contrib. Franz. T. Stone Lab. 6: 29. pl. 13. f. 329 (1934).

Eddy 1934, pp. 385, 386, 389–391, 396, 397, 399, 400: **Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun**—Mississippi River (June). **Champaign,** Urbana—ox-bow pond (Feb., Mar.). Hempel 1898, p. 327; Kofoid 1903, pp. 385, 516; 1908, pp. 67, 87, 324: **Fulton**—Illinois River and adjacent lakes (Jan.–Apr., July, Oct.–Dec.). Eddy, *loc. cit.* (1934): **Hancock, Jersey**—Mississippi River (June). **Macon**—Sangamon River (Jan.–Apr., Aug.–Dec.). **Madison**—Mississippi River (June). Hempel, *loc. cit.* (1898); Kofoid, *loc. cit.* (1903, 1908): **Mason,** Havana—Illinois River and adjacent lakes (Jan.–Apr., July, Oct.–Dec.); Topeka—Quiver Creek (Nov.). Eddy, *loc. cit.* (1934): **Pike, St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June, Aug.). **Wabash,** Mt. Carmel—Wabash River (Apr.).

## Suborder: OCHROMONADINEAE
## Family: OCHROMONADACEAE

### DINOBRYON Ehrenberg, 1835

D. BAVARICUM Imhof. Ahlstrom, Trans. Amer. Micr. Soc. 56: 154. pl. 3. f. 1–29 (1937).

*Dinobryon elongatum* Imhof; *Dinobryon stipitatum* var. *bavaricum* Zach.

Ahlstrom 1937, p. 154: **Cook**—Lake Michigan (June, July). Kofoid 1908, p. 78, as *D. elongatum* and *D. stipitatum* var. *bavaricum:* **Mason,** Havana—Illinois River.

D. CYLINDRICUM Imhof. Ahlstrom, *loc. cit.*, p. 148. pl. 2. f. 26–43 (1937).

*Dinobryon cylindricum* var. *palustre* Lemm.

Ahlstrom 1937, p. 148: **Cook**—Lake Michigan (May–July). Kofoid 1908, p. 78, as *D. c.* var. *palustre:* **Mason,** Havana—Illinois River.

D. DIVERGENS Imhof. Ahlstrom, *loc. cit.*, p. 142. pl. 1. f. 1–36 (1937).

*Dinobryon cylindricum* var. *divergens* Lemm.

Ahlstrom 1937, pp. 142, 145: **Cook**—Lake Michigan (July, Aug., Oct.). **Lake,** Antioch—Petite Lake (June); Diamond Lake—in Diamond Lake (June); Fox Lake—in Fox Lake (June); Lake Villa—Cedar Lake (June). Kofoid 1908, p. 78, as *D. c.* var. *divergens:* **Mason,** Havana—Illinois River.

D. PEDIFORME (Lemm.) Stein. Ahlstrom, *loc. cit.*, p. 146. pl. 1. f. 37–45 (1937).

*Dinobryon cylindricum* var. *pediforme* Lemm.

Kofoid 1908, p. 78, as *D. c. pediforme:* **Mason,** Havana—Illinois River.

D. SERTULARIA Ehr. Ahlstrom, *loc. cit.*, p. 149. pl. 2. f. 1–16 (1937).

*Dinobryon sertularia* var. *thyrsoideum* (Chod.) Lemm.

Jelliffe 1893, p. 311 (Cook). Hempel 1898, p. 323; Kofoid 1908, pp. 73, 74, 78, 320, also as *D. s.* var. *thyrsoideum* (Mason). Eddy 1927B, pp. 209, 216, 225 (Cook); 1931A, pp 479, 481 (Cass, Macon, Sangamon); 1931B, pp. 451, 464 (Pulaski); 1934, p. 46 (Cook). Britton (Cook, Lake).

**Cass,** Chandlerville—Sangamon River (June). **Cook,** Chicago—Lake Michigan (July, Aug.); Glenview—swamps and temporary ponds about 1½ miles W., May 12, 1938, Apr. 7, 1939, #56, 228; Park Ridge—shallow pond at Dempster St. and Milwaukee Ave., June 23, 1938, #84. **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1938, #255–257. **Macon**—Lake Decatur (June, July); Harristown—Sangamon River (June, July). **Mason,** Havana—Illinois River (Nov.–June). **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.). **Sangamon,** Illiopolis—Sangamon River (June, July).

D. SERTULARIA var. PROTUBERANS (Lemm.) Krieg. Ahlstrom, *loc. cit.*, p. 150. pl. 2. f. 17–25 (1937).

*Dinobryon protuberans* Lemm.

Ahlstrom 1937, p. 150: **Cook**—Lake Michigan (Aug.). Kofoid 1908, p. 78, as *D. protuberans:* **Mason,** Havana—Illinois River.

D. SOCIALE Ehr. Ahlstrom, *loc. cit.*, pl. 3. f. 37–52 (1937).

Ahlstrom 1937, p. 152: **Cook**—Lake Michigan (June–Aug.). **Lake,** Diamond Lake—in Diamond Lake (June); Wauconda—Bangs Lake (June). Kofoid 1908, p. 78: **Mason,** Havana—Illinois River.

D. SOCIALE var. AMERICANUM (Brunnth.) Bachm. Ahlstrom, *loc. cit.*, p. 153. pl. 3. f. 30–36 (1937).

*Dinobryon stipitatum* var. *americanum* Brunnth.

Ahlstrom 1937, p. 153: **Cook**—Lake Michigan (May, June). Kofoid 1908, p. 78, as *D. s.* var. *americanum:* **Mason,** Havana—Illinois River.

## Order: RHIZOCHRYSIDALES
## Family: RHIZOCHRYSIDACEAE

### RHIZOCHRYSIS Pascher, 1913

R. LIMNETICA Smith. Smith, Bull. Wis. Geol. & Nat. Hist. Surv. 57(1): 77. pl. 14. f. 6 (1920).

Eddy 1927B, p. 215: **Cook,** Chicago—Lake Michigan (July).

Class: BACILLARIOPHYCEAE
Order: CENTRALES
Suborder: COSCINODISCINEAE
Family: COSCINODISCACEAE

## COSCINODISCUS Ehrenberg, 1838

C. ASTEROMPHALUS Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 56 (1927).

This species is apparently the one intended but misspelled as *C. asteromorphus* in Ahlstrom 1936, p. 291: **Cook,** Evanston—Lake Michigan.

## CYCLOTELLA Kuetzing, 1834

C. ANTIQUA W. Smith. Boyer, *loc. cit.*, p. 39 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

C. BODANICA Eulenst. Boyer, *loc. cit.*, p. 40 (1927).

Skvortzow 1937, p. 656: **Cook,** Chicago—Lake Michigan (Jan.).

C. BODANICA var. MICHIGANENSIS Skvortz. Skvortzow, Amer. Midl. Nat. 18: 658. pl. 1. f. 31 (1937).

Skvortzow 1937, p. 658: **Cook,** Chicago—Lake Michigan (Jan.).

C. BODANICA var. STELLATA Skvortz. Skvortzow, *loc. cit.*, f. 30 (1937).

Skvortzow 1937, p. 658: **Cook,** Chicago—Lake Michigan (Jan.).

C. COMTA (Ehr.) Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila 78(Suppl. 1): 40 (1927).

Thomas & Chase 1887, p. 328; Skvortzow 1937, p. 654: **Cook,** Chicago—Lake Michigan (Jan.).

C. COMTA var. GLABRIUSCULA Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 103 (1930).

Skvortzow 1937, p. 655: **Cook,** Chicago—Lake Michigan (Jan.).

C. GLOMERATA Bachm. Hustedt, *loc. cit.*, p. 105. f. 81 (1930).

Daily 1938, p. 79: **Cook,** Evanston—Lake Michigan.

C. KUETZINGIANA Thw. Boyer, Proc. Acad. Nat. Sci. Phila. 78(Suppl. 1): 38 (1937).

Briggs 1872A, p. 43; Skvortzow 1937, p. 655: **Cook,** Chicago—Lake Michigan (Jan.). Forbes & Richardson 1913, p. 505: **Grundy,** Dresden Heights—DesPlaines River. Kofoid 1908, pp. 43, 48, 292, 317: **Mason,** Havana—Illinois River (all months).

C. MELOSIROIDES (Kirch.) Lemm. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 106. f. 82 (1930).

Daily 1938, p. 79: **Cook,** Evanston—Lake Michigan.

C. MENEGHINIANA Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 38 (1927).

Galtsoff 1924, pp. 399, 402, 404, 405: **Carroll**—Mississippi River

(July, Sept.). Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Skvortzow 1937, p. 655: **Cook,** Chicago—Lake Michigan (Jan.). Galtsoff, *loc. cit.* (1924): **Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside**—Mississippi River (July, Sept.).

C. MICHIGANIANA Skvortz. Skvortzow, Amer. Midl. Nat. 18: 658. pl. 1. f. 3, 10, 18 (1937).

Skvortzow 1937, p. 658: **Cook,** Chicago—Lake Michigan (Jan.).

C. OCELLATA Pant. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 100. f. 68 (1930).

Skvortzow 1937, p. 655: **Cook,** Chicago—Lake Michigan (Jan.).

C. OPERCULATA (Ag.) Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 39 (1927).

Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Skvortzow 1937, p. 655; Cook, Chicago—Lake Michigan (Jan.).

## MELOSIRA Agardh, 1824

M. CRENULATA (Ehr.) Kuetz. Boyer, *loc. cit.*, p. 29 (1927).

Galtsoff 1924, pp. 399, 401, 402, 404, 405, 409, 410: **Carroll**—Mississippi River (July, Sept.). Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan. Galtsoff, *loc. cit.* (1924): **Hancock, Henderson, Jo Daviess, Mercer**—Mississippi River (July–Sept.). **Rock Island**—Mississippi and Rock Rivers (July–Sept.). **Whiteside**—Mississippi River (July–Sept.).

M. DISTANS (Ehr.) Kuetz. Boyer, *loc. cit.*, p. 30 (1927).

*Gaillonella distans* Ehr.

Bailey 1845, p. 34, as *Gaillonella distans:* **St. Clair**—Mississippi River.

M. GRANULATA (Ehr.) Ralfs. Boyer, *loc. cit.* (1927); Mills, Index Diat. pp. 895, 929 (1934).

*Melosira granulata* var. *spinosa* Balach.; *Lysigonium granulatum* (Ehr.) Kuntze.

Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329; Jelliffe 1893, p. 311 (Cook). Kofoid 1908, pp. 11, 35, 43, 52, 292, 318, as *M. g.* var. *spinosa* (Mason). Forbes & Richardson 1913, p. 500; 1919, p. 145, as *M. g.* var. *spinosa* (LaSalle, Peoria, Putnam). Galtsoff 1924, p. 402 (Mississippi River). Eddy 1927B, pp. 208, 219, as *Lysigonium granulatum* (Cook); 1927A, pp. 127, 136 (Champaign). Eddy & Simer 1929, p. 62, as *Lysigonium granulatum* (Morgan). Eddy 1931A, pp. 474, 477, 480, 483, 486, as *Lysigonium granulatum* (Cass, Macon, Menard, Sangamon); 1931B, p. 460, as *Lysigonium granulatum* (Pulaski); 1934, pp. 385, 386, 388–391, 395, 399, 400, 402, 403, as *Lysigonium granulatum* (Adams, Alexander, Calhoun, Champaign, Cook, Hancock, Jackson, Jersey, Lake, Macon, Madison, Mason, Massac, McHenry,

Monroe, Ogle, Pike, Pulaski, Randolph, St. Clair, Union, Wabash, Whiteside).

**Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.); Mississippi River and Ohio River (June). **Calhoun**—Mississippi River (June). **Cass,** Chandlerville—Sangamon River (June–Sept.). **Champaign,** Urbana—Crystal Lake (Feb.–Oct.). **Cook,** Chicago—Lake Michigan. **Hancock, Jackson, Jersey**—Mississippi River (June). **Lake,** Long Lake—in Long Lake ("summer"). **La Salle,** Starved Rock—Illinois River. **Macon,** Decatur—Lake Decatur (all months); Harristown—Sangamon River (June–Sept.). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (all months). **Massac**—Ohio River (June). **McHenry,** Algonquin—Fox River (June). **Menard,** Petersburg—Sangamon River (June–Sept.). **Monroe**—Mississippi River (June). **Morgan,** Meredosia—Illinois River. **Ogle,** Grand Detour—slough (June–Aug.). **Peoria,** Chillicothe—Illinois River. **Pike**—Mississippi River (June). **Pulaksi**—Mississippi and Ohio Rivers (June); Wetaug—sink-hole ponds (Sept. Dec.). **Putnam,** Hennepin—Illinois River. **Randolph**—Mississippi River (June). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (June–Sept.). **St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.); Mississippi River (June). **Wabash,** Mt. Carmel—Wabash River (Apr.). **Whiteside,** Erie—Hatwood Slough (June–Aug.); Sterling—Rock River ("summer").

M. ITALICA (Ehr.) Kuetz. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 91. f. 50 (1930).

Transeau: **Lawrence,** Pinkstaff—pond (Nov.).

M. ITALICA var. TENUISSIMA (Grun.) O. Muell. Hustedt, *loc. cit.* (1930).

Transeau: **Coles,** Charleston—pond (Apr.).

M. JUERGENSII Ag. Boyer, Proc. Acad. Nat. Sci. Phila. 78(Suppl. 1): 27 (1927); Mills, Index Diat., p. 950 (1934).

*Melosira subflexilis* Kuetz.

Galtsoff 1924, p. 402, as *M. subflexilis:* **Hancock**—Lake Keokuk (Mississippi River).

M. VARIANS Ag. Boyer, *loc. cit.* (1927).

*Lysigonium varians* (Ag.) DeToni

Eddy 1934, p. 387, as *Lysigonium varians:* **Champaign,** Mahomet—Sangamon River (Mar.–Oct.). Transeau 1913B, p. 73: **Coles,** Ashmore—Polecat Creek (Oct.); Charleston—ponds, Embarrass River and small creeks (Mar.–June, Oct.–Feb.). Thomas & Chase 1887, p. 329; Eddy 1927B, pp. 208, 214, 219: **Cook,** Chicago—Lake Michigan (Apr.–Dec.). Transeau: **Cumberland,** Greenup—ditch (Nov.). **Edgar,** Paris—reservoir (July). **Jasper,**

Bogota—creek 6 miles S.W. (Aug.). **Lawrence,** Pinkstaff—ponds, small streams, bayous, and horsetrough (June, Aug., Oct.). Agersborg 1930, p. 110: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.). Kofoid 1903, p. 516; 1908, pp. 11, 35, 43, 55, 292, 318: **Mason,** Havana—Illinois River (all months); Topeka —Quiver Creek (Sept.–Dec.). Eddy 1931B, p. 451, as *Lysigonium varians:* **Pulaski,** Wetaug—sink-hole pond (Apr.).

## STEPHANODISCUS Ehrenberg, 1845

S. ASTRAEA (Ehr.) Grun. Boyer, *loc. cit.*, p. 61 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. ASTRAEA var. INTERMEDIA Fricke. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 110 (1930).

Skvortzow 1937, p. 653: **Cook,** Chicago—Lake Michigan (Jan.).

S. ASTRAEA var. MINUTULA (Kuetz.) Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 78(Suppl. 1): 61 (1927); Mills, Index Diat., p. 1482 (1934).

*Stephanodiscus minutus* Grun.

Thomas & Chase 1887, p. 330; Jelliffe 1893, p. 311, as *S. minutus;*

Skvortzow 1937, p. 654: **Cook,** Chicago—Lake Michigan (Jan.).

S. HANTZSCHII Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 110. f. 87 (1930).

Skvortzow 1937, p. 654: **Cook,** Chicago—Lake Michigan (Jan.).

S. NIAGARAE Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 78(Suppl. 1): 61 (1927).

Galtsoff 1924, pp. 399, 402, 404, 405, 410: **Carroll**—Mississippi River (July, Sept.). Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 44; Thomas & Chase 1887, p. 330; Jelliffe 1893, p. 311; Eddy 1927B, pp. 208, 214, 219; Skvortzow 1937, p. 653: **Cook,** Chicago—Lake Michigan (May–Sept., Jan.). Galtsoff, *loc. cit.* (1924): **Hancock, Henderson, Jo Daviess**—Mississippi River (July–Sept.). Kofoid 1908, pp. 43, 58: **Mason,** Havana—Illinois River (May). Galtsoff, *loc. cit.* (1924): **Mercer, Rock Island, Whiteside**—Mississippi River (July–Sept.).

S. NIAGARAE var. MAGNIFICA Fricke. Skvortzow, Amer. Midl. Nat. 18: 653 (1937).

Skvortzow 1937, p. 653: **Cook,** Chicago—Lake Michigan (Jan.).

## Family: EUPODISCACEAE

## ACTINOCYCLUS Ehrenberg, 1837

A. NIAGARAE H. L. Smith. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 86 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

Suborder: RHIZOSOLENINEAE
Family: RHIZOSOLENIACEAE

RHIZOSOLENIA Ehrenberg, 1843; Brightwell, 1858; Peragallo, 1892

R. ERIENSIS H. L. Smith. Boyer, *loc. cit.*, p. 98 (1927).
Briggs 1872A, p. 44; 1872B, p. 14; Smith 1878, p. 15; Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan. Kofoid 1908, pp. 43, 57: **Mason,** Havana—Illinois River ("winter").

R. LONGISETA Zach. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 114. f. 91 (1930); Mills, Index Diat., pp. 1404, 1406 (1934).
*Rhizosolenia gracilis* H. L. Smith
Thomas & Chase 1887, p. 330, as *R. gracilis:* **Cook,** Chicago—Lake Michigan.

Order: PENNALES
Suborder: FRAGILARINEAE
Family: TABELLARIACEAE

TABELLARIA Ehrenberg, 1839

T. FENESTRATA (Lyngb.) Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 78(Suppl. 1): 151 (1927).
*Striatella fenestrata* (Lyngb.) Kuntze.
Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 44; Thomas & Chase 1887, p. 330; Jelliffe 1893, p. 310 (Cook). Kofoid 1908, pp. 43, 59 (Mason). Forbes & Richardson 1913, pp. 500, 505 (Grundy); 1919, p. 145; Eddy 1927B, pp. 208, 214, 219, as *Striatella fenestrata* (Cook). Purdy 1930, pp. 63, 77, 79, 81, 85, 100, 101, 105–108, 117, 119, 121, 124, 157 (Fulton, Grundy, La Salle, Peoria, Will). Eddy 1934, p. 400 (Cook). Ahlstrom 1936, p. 290 (Cook). Daily 1938, pp. 74, 79 (Cook).
**Cook,** Chicago, Evanston—Lake Michigan (all months). **Fulton**—Spoon River (Dec.–Feb.). **Grundy,** Dresden Heights—DesPlaines and Illinois Rivers (July–Sept.); Morris—Illinois River (Dec.–Feb., June–Aug.). **La Salle,** La Salle, Marseilles—Illinois River (June–Feb.). **Mason,** Havana—Illinois River. **Peoria,** Chillicothe, Peoria—Illinois River (all months). **Will,** Lockport—Chicago Drainage Canal.

T. FLOCCULOSA (Roth) Kuetz. Boyer, *loc. cit.*, p. 152 (1927); Mills, Index Diat., pp. 1501, 1593 (1934).
*Striatella flocculosa* (Roth) Kuntze
Thomas & Chase 1887, p. 330; Jelliffe 1893, p. 310 (Cook); Forbes & Richardson 1913, pp. 495, 500, 505 (Grundy, La Salle, Peoria); 1919, p. 145; Eddy 1927B, pp. 208, 214, 219, as Striatella flocculosa (Cook). Purdy 1930, pp. 63, 80, 81, 106, 112,

119, 124, 132, 134, 145, 156 (Fulton, La Salle, Marshall, Mason, Peoria, Will). Daily 1938, p. 74, 79 (Cook).

**Cook,** Chicago, Evanston—Lake Michigan (all months). **Fulton**—Spoon River (Sept.–Nov.). **Grundy,** Dresden Heights—DesPlaines and Illinois Rivers (July–Sept.). **La Salle,** La Salle, Marseilles—Illinois River (July–Nov.). **Marshall,** Henry—Illinois River. **Mason,** Havana—Illinois River (Mar.–May). **Peoria,** Chillicothe, Peoria—Illinois River (all months). **Will,** Joliet—DesPlaines River (Mar.–Aug.); Lockport—Chicago Drainage Canal.

## Family: MERIDIONACEAE

### MERIDION Agardh, 1824

M. CIRCULARE (Grev.) Ag. Boyer, *loc. cit.*, p. 172 (1927); Mills, *loc. cit.*, p. 956 (1934).

*Meridion circulare* var. *zinkenii* (Kuetz.) Grun.

Transeau 1913B, p. 73, as *M. c.* var. *zinkenii:* **Coles,** Ashmore—in a spring (May); Charleston, Dorans, Lerna, Loxa—small streams, ditches, draintile, and ponds (Mar.–May, Oct., Nov.). Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan. Transeau: **Lawrence,** Pinkstaff—pond (Nov.). Kofoid 1903, p. 516; 1908, pp. 43, 57: **Mason,** Havana—Illinois River (Dec.–Mar.); Topeka—Quiver Creek (Apr.).

M. CIRCULARE var. CONSTRICTA (Ralfs) V. H. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 131. f. 119 (1930); Mills, *loc. cit.*, pp. 956, 957 (1934).

*Meridion constrictum* Ralfs.

Transeau, as *M. constrictum:* **Coles,** Charleston—small stream (Mar.). Agersborg 1930, p. 106, as *M. constrictum:* **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

## Family: DIATOMACEAE

### DIATOMA DeCandolle, 1805

D. ANCEPS (Ehr.) Kirch. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 176 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

D. ELONGATUM var. TENUIS (Ag.) V. H. Boyer, *loc. cit.* (1927).

Kofoid 1908, pp. 43, 49, 292, 317: **Mason,** Havana—Illinois River (all months).

D. HIEMALE (Lyngb.) Heib. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 129. f. 115 (1930); Mills, Index Diat., p. 590 (1934).

*Diatoma hiemale* var. *genuina* Grun.

Transeau, as *D. h.* var. *genuina:* **Lawrence,** Pinkstaff—pond (Nov.).

D. HIEMALE var. MESODON (Ehr.) Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 176 (1927).

Transeau: **Lawrence,** Pinkstaff—pond (Nov.).

D. VULGARE Bory. Boyer, *loc. cit.*, p. 174 (1927).

Kofoid 1903, p. 516; 1908, p. 50: **Mason,** Havana—Illinois River ("sparingly at irregular intervals"); Topeka—Quiver Creek (Sept.–Apr.).

## Family: FRAGILARIACEAE

### ASTERIONELLA Hassall, 1850

A. FORMOSA Hass. Boyer, *loc. cit.*, p. 213 (1927).

Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 42; Thomas & Chase 1887, p. 328; Jelliffe 1893, p. 310: **Cook,** Chicago—Lake Michigan. Kofoid 1908, p. 43: **Mason,** Havana—Illinois River (Nov.–Apr.).

A. GRACILLIMA (Hantz.) Heib. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 147. f. 157 (1930).

Eddy 1934, pp. 385, 386, 400: **Adams, Calhoun**—Mississippi River (June). Eddy 1927B, pp. 207, 208, 215, 220; *loc. cit.* (1934): **Cook,** Chicago—Lake Michigan (Apr., May, Sept.–Dec.). Eddy, *loc. cit.* (1934): **Hancock, Jersey**—Mississippi River (June). **Lake,** Lake Villa—Sand Lake ("summer"). Agersborg 1930, p. 110: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.). Eddy, *loc. cit.* (1934): **Madison**—Mississippi River (June). Eddy, *loc. cit.* (1934); Kofoid 1908, pp. 43, 44, 317: **Mason,** Havana—Illinois River (all months). Eddy, *loc. cit.* (1934): **Pike, St. Clair**—Mississippi River (June). **Wabash,** Mt. Carmel—Wabash River (Apr.). **Whiteside,** Sterling—Rock River ("summer").

### FRAGILARIA Lyngbye, 1819; Rabenhorst, 1864

F. CAPUCINA Desmaz. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 187 (1927); Mills, Index Diat., pp. 715, 743 (1934).

*Fragilaria rhabdosoma* Ehr.

Baker 1922, pp. 84, 85, 87: **Champaign,** Urbana—Salt Fork and Spoon River. Transeau: **Coles,** Charleston, Loxa—ponds, ditches and small streams (Mar., Apr., Oct., Nov.). Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Jelliffe 1893, p. 310: **Cook,** Chicago—Lake Michigan. Bailey 1845, p. 34, as *F. rhabdosoma:* **St. Clair**—Mississippi River.

F. CAPUCINA var. MESOLEPTA Rab. Boyer, *loc. cit.* (1927).

Transeau: **Coles,** Charleston—ponds (Apr., Oct.). Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

F. CONSTRICTA Ehr. Hustedt in Rab., Kryptog.-fl. Deutsch. 7(2): 166. f. 674a–c (1931).

Bailey 1845, p. 34: **St. Clair**—Mississippi River.

F. CONSTRUENS (Ehr.) Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 188 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

F. CONSTRUENS var. VENTER (Ehr.) Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 141 f. 138 (1930).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

F. CROTONENSIS Kitton. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 187 (1927); Mills, Index Diat., pp. 730, 1557 (1934).

*Synedra crotonensis* Grun.

Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 43; Thomas & Chase 1887, p. 330, as *Synedra crotonensis* (Cook). Kofoid 1908, pp. 35, 43, 50, 317 (Mason). Galtsoff 1924, pp. 399, 404, 405, 410 (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy 1927B, pp. 208, 214, 219 (Cook). Eddy 1934, p. 400 (Cook, Lake). Daily 1938, p. 79. (Cook).

**Carroll**—Mississippi River (July, Sept.). **Cook,** Chicago, Evanston—Lake Michigan (all months). **Hancock,** Dallas City—Lake Keokuk (Mississippi River) (July, Sept.). **Henderson, Jo Daviess**—Mississippi River (July–Sept.). **Lake,** Lake Villa—Sand Lake ("summer"); Long Lake—in Long Lake ("summer"). **Mason,** Havana—Illinois River (Feb.–May, Dec.). **Mercer, Rock Island, Whiteside**—Mississippi River (July–Sept.).

F. CROTONENSIS var. PROLONGATA Grun. Boyer, *loc. cit.* (1927).

*Synedra crotonensis* var. *prolongata* Grun.

Thomas & Chase 1887, p. 330, as *S. c.* var. *prolongata:* **Cook,** Chicago—Lake Michigan.

F. HARRISONII (W. Sm.) Grun. Boyer, *loc. cit.*, p. 189 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

F. HARRISONII var. RHOMBOIDES Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 140. f. 133 (1930).

Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

F. PINNATA Ehr. Hustedt, *loc. cit.*, p. 142. f. 141 (1930); Mills, Index Diat., pp. 737, 741 (1934).

*Fragilaria mutabilis* (W. Sm.). Grun.

Thomas & Chase 1887, p. 328, as *F. mutabilis:* **Cook,** Chicago—Lake Michigan.

F. PINNATA var. LANCETTULA (Schum.) Hust. Hustedt in Pascher Suesswass.-fl. Mitteleur. 10: 142. f. 142 (1930).

Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

F. VIRESCENS Ralfs. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 184 (1927).

Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Eddy 1927B, pp. 208, 214, 219: **Cook,** Chicago—Lake Michigan (Apr.–Dec.). Forbes & Richardson 1913, p. 505: **Grundy,** Dresden Heights—DesPlaines River. Kofoid 1903, p. 516; 1908, pp. 35, 43, 50, 292, 317: **Mason,** Havana—Illinois River (all months); Topeka—Quiver Creek (Mar., Apr., Nov., Dec.). Eddy & Simer 1929 p. 62: **Morgan,** Meredosia—Illinois River.

## SYNEDRA Ehrenberg, 1830

S. ACUS Kuetz. Boyer, *loc. cit.*, p. 201 (1927).

Transeau: **Coles,** Charleston—small streams and ponds (Dec., Jan., May). Kofoid 1903, p. 513; 1908, pp. 35, 43, 58, 292, 318, 319: **Mason,** Havana—Illinois River and seepage areas on river bank (all months); Topeka—Quiver Creek (Oct.–Apr.).

S. ACUS var. RADIANS (Kuetz.) Hust. Hustedt in Rab., Kryptog.-fl. Deutsch 7(2): 202. f. 693b (1932).

*Synedra acus* var. *delicatissima* W. Smith; *Synedra delicatissima* W. Smith; *Synedra radians* Kuetz.; *Synedra tenuissima* Kuetz.

Thomas & Chase 1887, p. 330, as *S. delicatissima* (Cook). Kofoid 1908, pp. 43, 58, as *S. a.* var. *delicatissima* (Mason). Purdy 1922, p. 53, as *S. delicatissima* (Massac, Pope). Galtsoff 1924, pp. 399, 402, 404, 410, as *S. delicatissima* (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy 1927B, p. 208, 214, 220, as *S. tenuissima* (Cook). Purdy 1930, p. 134, as *S. delicatissima* and *S. radians* (Peoria, Will). Eddy 1931A, pp. 480, 483, 486 (Cass, Macon, Menard, Sangamon); 1931B, p. 453, 460, as *S. tenuissima* (Pulaski). Daily 1938, p. 79, as *S. radians* (Cook). Transeau, as *S. delicatissima* (Clark, Coles).

**Carroll**—Mississippi River (July, Sept.). **Cass,** Chandlerville—Sangamon River (July, Sept.). **Clark**—Whetstone Creek (Oct.). **Coles,** Charleston—pond (Oct.); Wrightsville—in a spring (Apr.). **Cook,** Chicago, Evanston—Lake Michigan (May, July, Nov.). **Hancock,** Dallas City—Lake Keokuk (Mississippi River) (July–Sept.). **Henderson, Jo Daviess**—Mississippi River (July–Sept.). **Macon,** Decatur—Lake Decatur (June, July); Harristown—Sangamon River (July). **Mason,** Havana—Illinois River. **Massac**—Ohio River (Aug.–Oct.). **Menard,** Petersburg—Sangamon River (June, July, Sept.). **Mercer,** New Boston—Mississippi River (July–Sept.). **Peoria,** Peoria—Illinois River (Dec.–Feb.). **Pope**—Ohio River (Aug.–Oct.). **Pulaski,** Wetaug—sink-hole pond (Dec.). **Rock Island**—Mississippi River (July–

Sept.). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (July, Sept.). **Whiteside**—Mississippi River (July, Sept.). **Will,** Lockport—DesPlaines River (May).

S. CAPITATA Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Supp. 1): 203 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan. Kofoid 1908, p. 59: **Mason,** Havana—Illinois River ("spring months").

S. DORSIVENTRALIS Muell. Mills, Index Diat., p. 1560 (1934).

Transeau: **Coles,** Charleston—small stream (Mar.).

S. HYALINA Prov. Mills, *loc. cit.*, p. 1566 (1934).

Kofoid 1908, p. 58: **Mason,** Havana—Illinois River.

S. PARASITICA (W. Sm.) Hust. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 161. f. 195 (1930).

*Fragilaria parasitica* (W. Sm.) Grun.

Thomas & Chase 1887, p. 328, as *Fragilaria parasitica;* Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan.

S. PULCHELLA (Ralfs) Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 78 (Suppl. 1): 198 (1927).

Baker 1922, pp. 80, 86: **Champaign,** Urbana—Boneyard Creek and Salt Fork. Transeau: **Coles,** Charleston—small streams (Mar.). Briggs 1872A, p. 44; Thomas & Chase 1887, p. 330; Jelliffe 1893, p. 310: **Cook,** Chicago—Lake Michigan. Agersborg 1930, p. 110: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

S. RUMPENS Kuetz. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 156. f. 175 (1930).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. TENERA W. Smith. Hustedt, *loc. cit.*, p. 158. f. 182 (1930).

Transeau: **Coles,** Charleston—pond (Nov.).

S. ULNA (Nitz.) Ehr. Hustedt in Rab., Kryptog.-fl. Deutsch. 7(2): 195. f. 691Aa–c (1932).

*Synedra lanceolata* Kuetz.; *Synedra splendens* Kuetz.; *Synedra vitrea* Kuetz.

Eddy 1934, pp. 387, 392, 393: **Champaign,** Mahomet—Sangamon River (Mar.–July, Nov., Dec.). Transeau, as *S. splendens* and *S. vitrea:* **Coles,** Charleston—small streams (Jan., Mar., May, Oct., Dec.). Briggs 1872A, p. 44, also as *S. splendens;* Thomas & Chase 1887, p. 330, also as *S. lanceolata, S. splendens,* and *S. vitrea;* Jelliffe 1893, p. 310; Eddy 1927B, pp. 208, 214, 220; Daily 1938, pp. 74, 79: **Cook,** Chicago—Lake Michigan (all months). Agersborg 1930, pp. 106, 110, 113: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.). Kofoid 1908, p. 59: **Mason,** Havana—Illinois River ("pulse in May and Nov."). Eddy, *loc.*

*cit.* (1934): **Piatt,** Monticello—Sangamon River (all months). Eddy 1931B, pp. 451, 460: **Pulaski,** Wetaug—sink-hole ponds (Apr., July). Bailey 1845, p. 34: **St. Clair**—Mississippi River. Purdy 1930, pp. 68, 71: **Will,** Lockport—DesPlaines River (May, Oct.).

S. ULNA var. AEQUALIS (Kuetz.) Hust. Hustedt, *loc. cit.*, p. 189. f. 691Ad (1932).

*Synedra obtusa* W. Smith

Transeau, also as *S. obtusa:* **Coles,** Charleston—ponds and small streams (Mar., May, Nov.).

S. ULNA var. BICEPS (Kuetz.) Schonf. Hustedt, *loc. cit.*, p. 200. f. 691Ag (1932).

*Synedra longissima* W. Smith

Jelliffe 1893, p. 310, as *S. longissima:* **Cook,** Chicago—Lake Michigan.

S. ULNA var. DANICA (Kuetz.) Grun. Hustedt, *loc. cit.*, f. 691Af (1932); Mills, Index Diat., pp. 1556, 1559, 1584 (1934).

*Synedra danica* Kuetz.; *Synedra chaseii* Thomas.

Thomas & Chase 1887, p. 330, as *S. chaseii* and *S. danica:* **Cook,** Chicago—Lake Michigan.

S. ULNA var. SPATHULIFERA Grun. Hustedt, *loc. cit.*, p. 199. f. 691Ah (1932); Mills, *loc. cit.*, pp. 1567, 1578, 1586 (1934).

*Synedra joursacensis* Herib.; *Synedra spathulifera* Grun.

Transeau, as *S. joursacensis:* **Coles,** Dorans—ditch (May). Thomas & Chase 1887, p. 330, as *S. spathulifera:* **Cook,** Chicago—Lake Michigan.

## Family EUNOTIACEAE

### EUNOTIA Ehrenberg, 1837

E. FLEXUOSA (Breb.) Kuetz. Hustedt, *loc. cit.*, p. 312. f. 778 (1932).

*Synedra biceps* W. Smith

Purdy 1930, pp. 117, 124, as *Synedra biceps:* **Peoria,** Chillicothe—Illinois River (Mar.–Aug.).

E. FORMICA Ehr. Hustedt, *loc. cit.*, p. 308. f. 775 (1932).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

E. LUNARIS (Ehr.) Grun. Hustedt, *loc. cit.*, p. 302. f. 769a, b, d, e (1932).

Transeau: **Coles,** Charleston—small streams (Dec., Apr.). Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

E. MONODON var. MAJOR (W. Sm.) Hust. Hustedt, *loc. cit.*, p. 306. f. 772c (1932).

*Eunotia major* (W. Sm.) Rab.

Thomas & Chase 1887, p. 328, as *E. major:* **Cook,** Chicago—Lake Michigan.

E. PECTINALIS var. MINOR (Kuetz.) Rab. Hustedt, *loc. cit.*, p. 298. f. 763d–f (1932).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

## Suborder: ACHNANTHINEAE
## Family: ACHNANTHACEAE

### ACHNANTHES Bory, 1822

A. EXILIS Kuetz. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 198. f. 278 (1930).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

A. LANCEOLATA (Breb.) Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 234 (1927).

*Achnanthidium lanceolatum* Breb.

Transeau, as *Achnanthidium lanceolatum:* **Coles,** Charleston—small streams (Mar., May); Mattoon—swamp (Apr.).

A. LANCEOLATA var. ROSTRATA Hust. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 208. f. 306b (1930).

*Achnanthidium lanceolatum* var. *dubia* Grun.

Transeau, as *Achnanthidium l.* var. *dubia:* **Coles,** Charleston—small streams (Jan., Mar.).

A. MICROCEPHALA (Kuetz.) Cl. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 237 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

A. MINUTISSIMA (Kuetz.) Cl. Boyer, *loc. cit.* (1927); Mills, Index Diat., p. 964 (1934).

*Microneis minutissima* (Grun.) Cl.

Transeau, as *Microneis minutissima:* **Coles,** Charleston—pond (Nov.).

### COCCONEIS Ehrenberg, 1835; Grunow, 1868

C. FLEXELLA (Kuetz.) Cl. Boyer, *loc. cit.*, p. 248 (1927); Mills, *loc. cit.*, pp. 75, 420, 669 (1934).

*Eucocconeis flexella* (Kuetz.) Cl.; *Achnanthidium flexellum* (Breb.) Kuetz.

Thomas & Chase 1887, p. 328, as *Achnanthidium flexellum;* Ahlstrom 1936, p. 292, as *Eucocconeis flexella:* **Cook,** Chicago, Evanston—Lake Michigan.

C. PEDICULUS Ehr. Boyer, *loc. cit.*, p. 244; Mills, *loc. cit.*, pp. 414, 429 (1934).

*Cocconeis communis* Habirsh.

Transeau: **Coles,** Charleston—Indian Creek and ponds (Mar., May, Nov.); Loxa—ditch (Apr.). Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Ahlstrom 1936, p. 291: **Cook,** Chicago, Evanston—Lake Michigan. Kofoid 1903, p. 516; 1908, p. 47,

as *C. communis:* **Mason,** Havana—Illinois River (all months); Topeka—Quiver Creek (Oct., Dec.).

C. PLACENTULA Ehr. Boyer, *loc. cit.* (1927).
Transeau: **Coles,** Charleston—ponds and small streams (Oct.–Dec., Mar.). Eddy 1927B, pp. 208, 220: **Cook,** Chicago—Lake Michigan (May).

C. PLACENTULA var. LINEATA (Ehr.) Cl. Boyer, *loc. cit.* (1927); Mills, Index Diat., pp. 425, 432 (1934).
*Cocconeis lineata* Ehr.
Thomas & Chase 1887, p. 328, as *C. lineata* Kuetz.(?): **Cook,** Chicago—Lake Michigan.

## RHOICOSPHENIA Grunow, 1860

R. CURVATA (Kuetz.) Grun. Boyer, *loc. cit.*, p. 240 (1927).
*Gomphonema curvatum* Kuetz.
Transeau: **Coles,** Charleston—small streams (Mar., May, Dec.). Briggs 1872A, p. 44, as *Gomphonema curvatum;* Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

## Suborder: NAVICULINEAE
## Family: NAVICULACEAE

## AMPHIPLEURA Kuetzing, 1844

A. PELLUCIDA (Ehr.?) Kuetz. Boyer, *loc. cit.*, p. 303 (1927).
Transeau: **Coles,** Charleston—pond (Oct.). Briggs 1872A, p. 42; Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

## AMPHIPRORA Ehrenberg, 1843; Cleve, 1891

A. CALUMETICA Thomas. Boyer, *loc. cit.*, p. 486 (1927).
Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

A. ORNATA Bailey. Boyer, *loc. cit.*, p. 484 (1927).
Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 42; Thomas & Chase 1887, p. 328; Eddy 1927B, pp. 215, 220; Daily 1938, p. 79: **Cook,** Chicago, Evanston—Lake Michigan (July).

## ANOMOEONEIS Pfitzer, 1871

A. EXILIS (Kuetz.) Cl. Boyer, *loc. cit.*, p. 326 (1927).
*Navicula exilis* Kuetz.
Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329, as *Navicula exilis:* **Cook,** Chicago—Lake Michigan.

A. FOLLIS (Ehr.) Cl. Boyer, *loc. cit.*, p. 325 (1927); Mills, Index Diat., pp. 196, 1171 (1934).
*Navicula trochus* Ehr.
Thomas & Chase 1887, p. 330, as *Navicula trochus:* **Cook,** Chicago—Lake Michigan.

A. SERIANS (Breb.) Cl. Boyer, *loc. cit.*, p. 325 (1927).
*Navicula serians* Breb.
Thomas & Chase 1887, p. 330, as *Navicula serians:* **Cook,** Chicago—Lake Michigan.

## CALONEIS Cleve, 1891

C. ALPESTRIS (Grun.) Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 240 f. 372 (1930).
Ahlstrom 1936, p. 291: **Cook,** Evanston—Lake Michigan.

C. BACILLARIS (Greg.) Cl. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 309 (1927).
*Navicula bacillaris* Greg.
Thomas & Chase 1887, p. 329, as *Navicula bacillaris:* **Cook,** Chicago—Lake Michigan.

C. BACILLUM Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 236. f. 360 (1930); Mills, Index Diat., p. 317 (1934).
Ahlstrom 1936, p. 291: **Cook,** Evanston—Lake Michigan.

C. FASCIATA (Lagerst.) Cl. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 309 (1927); Mills, Index Diat., pp. 320, 1076 (1934).
*Navicula lacunarum* Grun.
Thomas & Chase 1887, p. 329, as *Navicula lacunarum:* **Cook,** Chicago—Lake Michigan.

C. SILICULA (Ehr.) Cl. Boyer, *loc. cit.*, p. 308 (1927).
*Navicula limosa* Kuetz.
Thomas & Chase 1887, p. 329, as *Navicula limosa;* Ahlstrom 1936, p. 291: **Cook,** Chicago, Evanston—Lake Michigan.

C. SILICULA var. ALPINA Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 238. f. 366 (1930).
Transeau: **Coles,** Charleston—pond (Apr.).

C. SILICULA var. GENUINA Cl. Mills, Index Diat., p. 328 (1934).
Transeau: **Coles,** Charleston—ponds and small streams (Apr., May, Oct.).

C. SILICULA var. GIBBERULA (Kuetz.) Cl. Boyer, Proc. Acad. Nat. Sci. Phila. 79(Suppl. 2): 308 (1927).
*Navicula silicula* var. *gibberula* (Kuetz.) Grun.
Thomas & Chase 1887, p. 329, as *Navicula s.* var. *gibberula:* **Cook,** Chicago—Lake Michigan.

C. SILICULA var. INFLATA (Grun.) Cl. Boyer, *loc. cit.* (1927); Mills, Index Diat., pp. 328, 1084 (1934).
*Navicula limosa* var. *subinflata* Grun.
Thomas & Chase 1887, p. 329, as *Navicula l.* var. *subinflata:* **Cook,** Chicago—Lake Michigan.

C. SILICULA var. UNDULATA (Grun.) Cl. Mills, *loc. cit.*, pp. 329, 1084 (1934).

*Navicula limosa* var. *undulata* Grun.

Thomas & Chase 1887, p. 329, as *Navicula l.* var. *undulata:* **Cook,** Chicago—Lake Michigan.

C. TRINODIS (Lew.) Meist. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 309 (1927).

*Navicula trinodis* Lewis

Transeau: **Coles,** Charleston—pond (Apr.). Thomas & Chase 1887, p. 330, as *Navicula trinodis:* **Cook,** Chicago—Lake Michigan.

## DIPLONEIS Ehrenberg, 1844

D. ELLIPTICA (Kuetz.) Cl. Boyer, *loc. cit.*, p. 355 (1927).

*Navicula elliptica* Kuetz.

Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329, as *Navicula elliptica:* **Cook,** Chicago—Lake Michigan.

D. PUELLA (Schum.) Cl. Boyer, *loc. cit.* (1927).

*Navicula elliptica* var. *minutissima* V. H.

Thomas & Chase 1887, p. 329, as *Navicula e.* var. *minutissima:* **Cook,** Chicago—Lake Michigan.

## FRUSTULIA Agardh, 1824; Grunow, 1865

F. RHOMBOIDES (Ehr.) DeToni. Boyer, *loc. cit.*, p. 301 (1927).

*Navicula rhomboides* Ehr.; *Vanheurckia rhomboides* (Ehr.) Breb.

Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329, as *Navicula rhomboides:* **Cook,** Chicago—Lake Michigan. Agersborg 1930, p. 106, as *Vanheurckia rhomboides:* **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

F. VIRIDULA (Breb.) DeToni. Boyer, *loc. cit.* (1927).

*Schizonema viridulum* Breb.

Thomas & Chase 1887, p. 330, as *Schizonema viridulum:* **Cook,** Chicago—Lake Michigan.

F. VULGARIS (Thw.) DeToni. Boyer, *loc. cit.*, p. 302 (1927); Mills, Index Diat., pp. 760, 1437 (1934).

*Schizonema vulgare* Thw.

Transeau: **Clark**—Whetstone Creek (Oct.). **Coles,** Charleston—small streams (Jan., Mar., Oct.). Thomas & Chase 1887, p. 330, as *Schizonema vulgare:* **Cook,** Chicago—Lake Michigan.

## GYROSIGMA Hassall, 1845; Cleve, 1894

G. ACUMINATUM (Kuetz.) Cl. Boyer, *loc. cit.*, p. 456 (1927); Mills, *loc. cit.*, p. 1149 (1934).

*Navicula sigma* Ehr.

Eddy 1934, p. 387: **Champaign,** Mahomet—Sangamon River (July–Dec.). Eddy 1927B, pp. 215, 220; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan. Bailey 1845, p. 34, as *Navicula sigma:* **St. Clair**—Mississippi River.

G. ATTENUATUM (Kuetz.) Cl. Boyer, *loc. cit.*, p. 455 (1927).

*Pleurosigma attenuatum* W. Smith

Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 44; Thomas & Chase 1887, p. 330, as *Pleurosigma attenuatum:* **Cook,** Chicago—Lake Michigan. Agersborg 1930, pp. 106, 110, as *Pleurosigma attenuatum:* **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

G. EXIMIUM (Thw.) Boy. Boyer, *loc. cit.*, p. 462 (1927); Mills, Index Diat., pp. 828, 1332 (1934).

*Pleurosigma eximium* V. H.

Thomas & Chase 1887, p. 330, as *Pleurosigma eximium:* **Cook,** Chicago—Lake Michigan.

G. KUETZINGII (Grun.) Cl. Boyer, *loc. cit.*, p. 461 (1927).

*Pleurosigma kuetzingii* Grun.

Thomas & Chase 1887, p. 330, as *Pleurosigma kuetzingii:* **Cook,** Chicago—Lake Michigan.

G. SCALPROIDES (Rab.) Cl. Boyer, *loc. cit.*, p. 460 (1927).

Transeau: **Clark**—Whetstone Creek (Oct.). **Coles** Charleston—small stream and ditch (Apr., Oct.). **Lawrence,** Pinkstaff—pond (Nov.).

G. SPENCERII (Quek.) Cl. Boyer, *loc. cit.*, p. 459 (1927).

*Pleurosigma spencerii* (Quek.) W. Smith

Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 44; Thomas & Chase 1887, p. 330; Jelliffe 1893, p. 310, as *Pleurosigma spencerii:* **Cook,** Chicago—Lake Michigan. Galtsoff 1924, p. 405, as *Pleurosigma spencerii:* **Mercer,** New Boston—Mississippi River, Sturgeon Bay (July).

G. WORMLEYI (Sulliv.) Boy. Boyer, *loc. cit.*, p. 460 (1927).

*Pleurosigma wormleyi* Sulliv.

Thomas & Chase 1887, p. 330, as *Pleurosigma wormleyi:* **Cook,** Chicago—Lake Michigan.

## MASTOGLOIA Thwaites, 1856

M. SMITHII Thw. Boyer, *loc. cit.*, p. 332 (1927).

Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

M. SMITHII var. AMPHICEPHALA Grun. Boyer, *loc. cit.* (1927).
Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

M. SMITHII var. LACUSTRIS Grun. Boyer, *loc. cit.* (1927).
Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

## NAVICULA Bory, 1822; Cleve, 1894

N. AMBIGUA Ehr. Mills, Index Diat., p. 974 (1934).
*Navicula ambigua* f. *craticularis*
Transeau: **Coles,** Charleston—small streams (May, Oct.). Thomas & Chase 1887, p. 329, also as *N. a.* f. *craticularis:* **Cook,** Chicago—Lake Michigan.

N. ANGLICA Ralfs. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 384 (1927).
*Navicula tumida* W. Smith
Briggs 1872A, p. 44, as *N. tumida:* Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

N. BACILLUM Ehr. Boyer, *loc. cit.*, p. 371 (1927).
Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

N. CONFERVACEA (Kuetz.) Grun. Boyer, *loc. cit.*, p. 370 (1927).
Galtsoff 1924, p. 399: **Hancock, Henderson**—Mississippi River (July).

N. CRYPTOCEPHALA Kuetz. Boyer, *loc. cit.*, p. 383 (1927).
Baker 1922, p. 80: **Champaign,** Urbana—Boneyard Creek. Transeau: **Coles,** Ashmore—pond (Nov.); Charleston—pond and small streams (Jan.–May, Nov.); Embarrass—small stream (Mar.); Wrightsville—in a spring (Apr.). Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan. Transeau: **Lawrence,** Pinkstaff—(Nov.).

N. CUSPIDATA Kuetz. Boyer, *loc. cit.* (1927).
Transeau: **Coles,** Charleston—ponds, ditches and small streams (Mar.–May, Nov.). Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

N. DICEPHALA (Ehr.) W. Smith. Boyer, *loc cit.*, p. 386 (1927).
Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

N. DICEPHALA var. ELGINENSIS (Greg.) Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 303 (1930).
Transeau: **Coles,** Loxa—ditch (Apr.).

N. EXIGUA (Greg.) Muell. Hustedt, *loc. cit.*, p. 305. f. 538 (1930).
Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

M. GASTRUM Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 389 (1927).
*Navicula varians* Greg.
Thomas & Chase 1887, p. 330, as *N. varians;* Ahlstrom 1937, p. 292: **Cook,** Chicago, Evanston—Lake Michigan.

N. GRACILIS Ehr. Boyer, *loc. cit.*, p. 385 (1927).
Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan. Agersborg 1930, pp. 108–110, 113: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

M. MUTICA Kuetz. Boyer, *loc. cit.*, p. 369 (1927).
Thomas & Chase 1887, p. 329: **Cook,** Chicago—LakeMichigan.

N. OBLONGA Kuetz. Boyer, *loc. cit.*, p. 395 (1927).
Thomas & Chase 1887, p. 329; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan.

N. OBLONGA var. SUBCAPITATA Pant. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 308. f. 551 (1930).
Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

N. PLATYSTOMA Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 400 (1927).
Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

N. PROTRACTA (Grun.) Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 284. f. 472 (1930).
Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

N. PUPULA Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 369 (1927).
Thomas & Chase 1887, p. 329; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan.

N. RADIOSA Kuetz. Boyer, *loc. cit.*, p. 397 (1927).
*Pinnularia radiosa* W. Smith
Transeau: **Coles,** Charleston—ponds (Oct., Nov.). Briggs 1872A, p. 44, as *Pinnularia radiosa;* Thomas & Chase 1887, p. 329; Jelliffe 1893, p. 310: **Cook,** Chicago—Lake Michigan.

N. RADIOSA var. TENELLA (Breb.) Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 299 (1930); Mills, Index Diat., pp. 1133, 1167 (1934).
*Navicula tenella* Breb.
Thomas & Chase 1887, p. 330, as *N. tenella:* **Cook,** Chicago—Lake Michigan.

N. REINHARDTII (Grun.) V. H. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 393 (1927).
Thomas & Chase 1887, p. 329; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan.

N. RHYNCOCEPHALA Kuetz. Boyer, *loc. cit.*, p. 387 (1927).
Transeau: **Coles,** Charleston—small stream (Oct.). Jelliffe 1893, p. 310: **Cook,** Chicago—Lake Michigan. Agersborg 1930, p. 106: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

N. SALINARUM Grun. Boyer, loc. cit., p. 383 (1927).
Baker 1922, pp. 82–84, 86, 87: **Champaign,** Urbana—Salt Fork and Spoon River.

N. SALINARUM var. INTERMEDIA (Grun.) Cl. Mills, Index Diat., p. 1141 (1934).

Transeau: **Coles,** Charleston—small stream (Oct.).

N. SCUTELLOIDES W. Smith. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 409 (1927).

Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

N. SEMINULUM Grun. Boyer, *loc. cit.*, p. 368 (1927); Mills, Index Diat., pp. 1142, 1147 (1934).

*Navicula saugerri* Desmaz.

Thomas & Chase 1887, p. 329, as *N. saugerri:* **Cook,** Chicago—Lake Michigan.

N. TUSCULA (Ehr.) Grun. Boyer, *loc. cit.*, p. 385 (1927).

*Navicula punctata* Donk.

Thomas & Chase 1887, p. 329, 330, also as *N. punctata:* **Cook,** Chicago—Lake Michigan.

N. VIRIDULA Kuetz. Boyer, *loc. cit.*, p. 388 (1927).

Thomas & Chase 1887, p. 330; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan.

## NEIDIUM Pfitzer, 1871

N. AMPHIGOMPHUS (Ehr.) Pfitz. Boyer, *loc. cit.*, p. 322 (1927).

*Navicula iridis* var. *amphigomphus* (Ehr.) V. H.

Thomas & Chase 1887, p. 329, as *Navicula i.* var. *amphigomphus:* **Cook,** Chicago—Lake Michigan.

N. AMPHIRHYNCUS (Ehr.) Pfitz. Boyer, *loc. cit.*, p. 321 (1927).

*Navicula amphirhyncus* Ehr.; *Navicula iridis* var. *amphirhyncus* (Ehr.) V. H.

Thomas & Chase 1887, p. 329, as *Navicula i.* var. *amphirhyncus:* **Cook,** Chicago—Lake Michigan. Bailey 1845, p. 34, as *Navicula amphirhyncus:* **St. Clair**—Mississippi River.

N. DUBIUM (Ehr.) Pfitz. Boyer, *loc. cit.*, p. 322 (1927).

*Navicula dubia* Ehr.

Thomas & Chase 1887, p. 329, as *Navicula dubia:* **Cook,** Chicago—Lake Michigan.

N. HITCHCOCKII (Ehr.) Cl. Boyer, *loc. cit.* (1927).

*Navicula hitchcockii* Ehr.

Thomas & Chase 1887, p. 329, as *Navicula hitchcockii:* **Cook,** Chicago—Lake Michigan.

N. IRIDIS (Ehr.) Pfitz. Boyer, *loc. cit.*, p. 321 (1927).

*Navicula iridis* Ehr.

Thomas & Chase 1887, p. 329, as *Navicula iridis:* Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan. Kofoid 1908, p. 57, as *Navicula iridis:* **Mason,** Havana—Illinois River ("colder months").

N. IRIDIS var. FIRMA (Kuetz.) V. H. Mills, Index Diat., pp. 1070, 1189 (1934).

*Navicula iridis* var. *firma* (Grun.) Kuetz.

Thomas & Chase 1887, p. 329, as *Navicula i.* var. *firma:* **Cook,** Chicago—Lake Michigan.

N. PRODUCTUM (W. Sm.) Pfitz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 321 (1927); Mills, *loc. cit.*, pp. 1070, 1190 (1934).

*Navicula iridis* var. *affinis* (Ehr.) V. H.; *Navicula iridis* var. *producta* (W. Sm.) V. H.

Thomas & Chase 1887, p. 329, as *Navicula i.* var. *affinis* and *N. i.* var. *producta:* **Cook,** Chicago—Lake Michigan.

## PINNULARIA Ehrenberg, 1840

P. APPENDICULATA (Ag.) C. Boyer, *loc. cit.*, p. 432 (1927).

*Navicula appendiculata* Kuetz.

Thomas & Chase 1887, p. 329, as *Navicula appendiculata:* **Cook,** Chicago—Lake Michigan.

P. BRAUNII (Grun.) Cl. Boyer, *loc. cit.*, p. 433 (1927).

Transeau: **Cumberland,** Greenup—ditch (Nov.).

P. BREBISSONII (Kuetz.) Rab. Boyer, *loc. cit.*, p. 435 (1927).

*Navicula brebissonii* Kuetz.

Transeau: **Coles,** Charleston—small streams (Jan., Apr.). Thomas and Chase 1887, p. 329, as *Navicula brebissonii:* **Cook,** Chicago—Lake Michigan.

P. BREVICOSTATA var. LEPTOSTAURON Cl. Mills, Index Diat., p. 1274 (1927).

Transeau: **Coles,** Charleston—pond (Apr.).

P. CARDINALIS (Ehr.) W. Smith. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 337. f. 621 (1930); Mills, *loc. cit.*, pp. 1002, 1275 (1934).

*Navicula cardinalis* Ehr.

Thomas & Chase 1887, p. 329, as *Navicula cardinalis:* **Cook,** Chicago—Lake Michigan.

P. DIVERGENS W. Smith. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 435 (1927); Mills, *loc. cit.*, pp. 1029, 1279 (1934).

*Navicula divergens* Ralfs

Thomas & Chase 1887, p. 329, as *Navicula divergens:* **Cook,** Chicago—Lake Michigan.

P. GIBBA (V. H.) Boy. Boyer, *loc. cit.*, p. 440 (1927).

*Navicula gibba* Kuetz.

Transeau: **Coles,** Charleston—pond (Apr.). Thomas & Chase 1887, p. 329, as *Navicula gibba:* **Cook,** Chicago—Lake Michigan.

P. GLOBICEPS Greg. Boyer, *loc. cit.*, p. 434 (1927); Mills, Index Diat., pp. 1052, 1284 (1934).

*Navicula globiceps* Greg.

Thomas & Chase 1887, p. 329, as *Navicula globiceps:* **Cook,** Chicago—Lake Michigan.

P. HEMIPTERA (Kuetz.) W. Smith. Boyer, *loc. cit.*, p. 442 (1927); Mills, *loc. cit.*, pp. 1059, 1285 (1934).

*Navicula hemiptera* Kuetz.

Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329, as *Navicula hemiptera:* **Cook,** Chicago—Lake Michigan.

P. INTERRUPTA f. BICAPITATA (Lag.) Fritsch. Mills, *loc. cit.*, p. 1287 (1934).

*Navicula bicapitata* Lag.

Thomas & Chase 1887, p. 329, as *Navicula bicapitata:* **Cook,** Chicago—Lake Michigan.

P. MAJOR (Kuetz.) W. Smith. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 446 (1927).

*Navicula major* Kuetz.

Thomas & Chase 1887, p. 329, as *Navicula major;* Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan.

P. MAJOR var. TRANVERSA (A. Schm.) Cl. Boyer, *loc. cit.* (1927).

Transeau: **Coles,** Charleston—pond (Nov.).

P. MESOLEPTA (Ehr.) W. Smith. Boyer, *loc. cit.*, p. 433 (1927).

*Navicula mesolepta* Ehr.

Thomas & Chase 1887, p. 329, as *Navicula mesolepta:* **Cook,** Chicago—Lake Michigan.

P. NOBILIS Ehr. Boyer, *loc. cit.*, p. 445 (1927).

*Navicula nobilis* (Ehr.) Kuetz.

Thomas & Chase 1887, p. 329, as *Navicula nobilis:* **Cook,** Chicago—Lake Michigan.

P. PARVA Greg. Boyer, *loc. cit.*, p. 443 (1927); Mills, Index Diat., pp. 1115, 1298 (1934).

*Navicula parva* Ralfs.

Thomas & Chase 1887, p. 329, as *Navicula parva:* **Cook,** Chicago—Lake Michigan.

P. TABELLARIA Ehr. Boyer, *loc. cit.*, p. 438 (1927); Mills, *loc. cit.*, pp. 1167, 1307 (1934).

*Navicula tabellaria* Ehr.

Thomas & Chase 1887, p. 330, as *Navicula tabellaria:* **Cook,** Chicago—Lake Michigan.

P. TERMES Ehr. Boyer, *loc. cit.*, p. 433 (1927).

*Navicula termes* Ehr.

Thomas & Chase 1887, p. 330, as *Navicula termes:* **Cook,** Chicago—Lake Michigan.

P. VIRIDIS (Nitz.) Ehr. Boyer, *loc. cit.*, p. 446 (1927).
*Navicula viridis* Kuetz.
Thomas & Chase 1887, p. 330, as *Navicula viridis:* **Cook,** Chicago —Lake Michigan. Agersborg 1930, p. 106, as *Navicula viridis:* **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).
P. VIRIDIS var. ELLIPTICA Meist. Mills, Index Diat., p. 1310 (1934).
Transeau: **Coles,** Charleston—ponds and small streams (Mar., Apr.); Loxa—ditch (Apr.); Wrightsville—in a spring (Apr.). **Lawrence,** Pinkstaff—pond (Nov.).

## PLEUROSIGMA W. Smith, 1852; Cleve, 1894

P. ANGULATUM (Quek.) W. Smith. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 471 (1927).
Kofoid 1903, p. 516: **Mason,** Topeka—Quiver Creek (Jan., Apr., Sept., Oct.).

## STAURONEIS Ehrenberg, 1843

S. ACUTA W. Smith. Boyer, *loc. cit.*, p. 425 (1927).
Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.
S. ANCEPS Ehr. Boyer, *loc. cit.*, p. 422 (1927).
Transeau: **Coles,** Embarrass—small stream (Mar.); Mattoon —swamp (Apr.). Thomas & Chase 1887, p. 330; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan. Agersborg 1930, pp. 108–110, 113: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).
S. ANCEPS var. BIROSTRIS (Ehr.) Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 256 (1930).
Transeau: **Coles,** Charleston—creek (Mar.).
S. ANCEPS var. LINEARIS (Grun.) V. H. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 422 (1927); Mills, Index Diat., pp. 1454, 1462 (1934).
*Stauroneis linearis* Ehr.
Thomas & Chase 1887, p. 330, as *S. linearis:* **Cook,** Chicago—Lake Michigan.
S. GRACILIS Ehr. Boyer, *loc. cit.* (1927).
Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.
S. PHOENICENTRON (Nitz.) Ehr. Boyer, *loc. cit.*, p. 421 (1927).
Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.
S. PHOENICENTRON var. AMPHILEPTA (Ehr.) Cl. Mills, Index Diat., p. 1466 (1934).
Transeau: **Coles,** Charleston—creek (Mar.); Loxa—ditch (Apr.).
S. PHYLLODES Ehr. Mills, *loc. cit.*, p. 1467 (1934).
Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.
S. PRODUCTA Grun. Mills, *loc. cit.* (1934).
Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

## Family: GOMPHONEMATACEAE

### GOMPHONEIS Cleve, 1894

G. HERCULEANA (Ehr.) Cl. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 299 (1927).

*Gomphonema eriense* Grun.; *Gomphonema herculeanum* Ehr.

Thomas & Chase 1887, p. 329, as *Gomphonema eriense* and *Gomphonema herculeanum:* **Cook,** Chicago—Lake Michigan.

G. HERCULEANA var. ROBUSTA (Grun.) Cl. Mills, Index Diat., pp. 789, 800 (1934).

*Gomphonema robustum* Grun.

Thomas & Chase 1887, p. 329, as *Gomphonema robustum:* **Cook,** Chicago—Lake Michigan.

### GOMPHONEMA Agardh, 1824

G. ACUMINATUM Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 290 (1927).

Transeau 1916, p. 124: **Coles,** Charleston—ponds and small streams (Mar., Oct., Dec.). Thomas & Chase 1887, p. 328; Eddy 1927B, pp. 208, 220: **Cook,** Chicago—Lake Michigan (Apr., May, Sept.–Nov.). Transeau: **Cumberland,** Greenup—ditch (Nov.). Agersborg 1930, p. 106: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

G. ACUMINATUM var. CORONATUM (Ehr.) Rab. Boyer, *loc. cit.*, p. 291 (1927).

*Gomphonema coronatum* Ehr.

Thomas & Chase 1887, p. 329, as *G. coronatum:* **Cook,** Chicago—Lake Michigan.

G. ACUMINATUM var. ELONGATUM (W. Sm.) V. H. Boyer, *loc. cit.* (1927).

*Gomphonema acuminatum* var. *intermedia* Grun.

Thomas & Chase 1887, p. 328, as *G. a.* var. *intermedia:* **Cook,** Chicago—Lake Michigan.

G. ACUMINATUM var. LATICEPS (Ehr.) A. Schmidt. Mills, Index Diat., p. 774 (1934).

*Gomphonema laticeps* Ehr.

Thomas & Chase 1887, p. 329, as *G. laticeps:* **Cook,** Chicago—Lake Michigan.

G. ACUMINATUM var. TRIGONOCEPHALUM (Ehr.) Cl. Boyer, Proc. Acad. Nat. Sci. Phila 79 (Suppl. 2): 291 (1927).

*Gomphonema trigonocephalum* Ehr.

Thomas & Chase 1887, p. 329, as *G. trigonocephalum:* **Cook,** Chicago—Lake Michigan.

G. ACUMINATUM var. TURRIS (Ehr.) Cl. Boyer, *loc. cit.* (1927).

*Gomphonema turris* Ehr.

Thomas & Chase 1887, p. 329, as *G. turris:* **Cook,** Chicago—Lake Michigan.

G. ANGUSTATUM (Kuetz.) Grun. Boyer, *loc. cit.*, p. 294 (1927).

Transeau 1916, p. 775: **Clark,** Whetstone Creek (Oct.). **Coles,** Ashmore, Charleston, Dorans, Embarrass, Loxa—ponds, Indian Creek and other small streams and ditches (Nov.–May); Mattoon—swamp (Apr.). **Cumberland,** Greenup—ditch (Nov.). **Lawrence,** Pinkstaff—pond (Nov.).

G. ANGUSTATUM var. OBTUSATUM (Kuetz.) V. H. Boyer, *loc. cit.*, p. 295 (1927).

Transeau: **Coles,** Charleston—small streams (Jan., Mar.).

G. CONSTRICTUM Ehr. Boyer, *loc. cit.*, p. 292 (1927).

Transeau: **Clark**—Whetstone Creek (Oct.). **Coles,** Charleston—small stream (Oct.). **Cumberland,** Greenup—ditch (Nov.). Kofoid 1903, p. 516; 1908, p. 52: **Mason,** Havana—Illinois River ("irregular—most abundant in May and Nov."); Topeka—Quiver Creek (Apr., Nov.).

G. CONSTRICTUM var. CAPITATUM (Ehr.) Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 377. f. 715 (1930); Mills, Index Diat. pp. 779, 881 (1934).

*Gomphonema capitatum* Ehr.

Briggs 1872A, p. 43; Thomas & Chase 1887, p. 329, as *G. capitatum:* **Cook,** Chicago—Lake Michigan.

G. CONSTRICTUM var. CAPITATUM f. TURGIDUM (Ehr.) A. Mayer. Mills, *loc. cit.*, pp. 781, 805 (1934).

*Gomphonema turgidum* Ehr.

Thomas & Chase 1887, p. 329, as *G. turgidum:* **Cook,** Chicago—Lake Michigan.

G. GEMINATUM (Lyngb.) Ag. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 289 (1927).

Briggs 1872A, p. 43; Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

G. GRACILE var. DICHOTOMA (Kuetz.) Grun. Mills, Index Diat., pp. 783, 787 (1934).

*Gomphonema dichotomum* W. Smith

Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329, as *G. dichotomum:* **Cook,** Chicago—Lake Michigan.

G. INTRICATUM Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila 79 (Suppl. 2): 295 (1927).

Transeau: **Coles,** Charleston—small streams (Dec., Mar.). Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

G. INTRICATUM var. VIBRIO (Ehr.) Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 376. f. 698 (1930); Mills, Index Diat., pp. 790, 806 (1934).

*Gomphonema vibrio* Ehr.

Thomas & Chase 1887, p. 329, as *G. vibrio:* **Cook,** Chicago—Lake Michigan.

G. MONTANUM var. SUBCLAVATUM Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 79(Suppl. 2): 290 (1927).

*Gomphonema subclavatum* Grun.

Transeau, as *G. subclavatum:* **Clark**—Whetstone Creek (Oct.).

G. OLIVACEUM (Lyngb.) Kuetz. Boyer, *loc. cit.*, p. 296 (1927).

Eddy 1927A, p. 131: **Champaign,** Urbana—drainage ditch ("fall and winter"). Transeau: **Coles,** Charleston—pond and small streams (Mar., May). Briggs 1872A, p. 44; Thomas & Chase 1887, p. 329; Ahlstrom 1936, p. 292: **Cook,** Chicago, Evanston—Lake Michigan. Transeau: **Cumberland,** Greenup—ditch (Nov.).

G. OLIVACEUM var. CALCAREA Cl. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 379. f. 721 (1930).

Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

G. PARVULUM (Kuetz.) Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 294 (1927).

Transeau: **Coles,** Charleston—small stream (Oct.).

G. SEMIAPTERUM Grun. Boyer, *loc. cit.*, p. 291 (1927).

Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

G. SPHAEROPHORUM Ehr. Boyer, *loc. cit.*, p. 292 (1927).

Transeau: **Coles,** Charleston—pond (Apr.). Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

## Family: CYMBELLACEAE

### AMPHORA Ehrenberg, 1840

A. NORMANI Rab. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 343. f. 630 (1930).

Transeau: **Coles,** Charleston—small stream (May).

A. OVALIS Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 254 (1927).

Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Daily 1938, p. 79: **Cook,** Chicago, Evanston—Lake Michigan.

### CYMBELLA Agardh, 1830

C. AEQUALIS W. Smith. Boyer, *loc. cit.*, p. 276 (1927).

Transeau: **Coles,** Charleston—creek (Mar.).

C. AFFINIS Kuetz. Boyer, *loc. cit.* (1927).

Transeau: **Clark**—Whetstone Creek (Oct.). **Coles**—Indian Creek and draintile (Mar., May, Nov.).

C. AMPHICEPHALA Naeg. Boyer, *loc. cit.*, p. 275 (1927).
Transeau: **Coles,** Charleston—small stream (Oct.).

C. ASPERA (Ehr.) Cl. Boyer, *loc. cit.*, p. 278 (1927).
*Cymbella gastroides* Kuetz.
Transeau, as *C. gastroides:* **Coles,** Charleston—ponds, ditches and small streams (Mar.–May, Nov.). Thomas & Chase 1887, p. 328, as *C. gastroides:* **Cook,** Chicago—Lake Michigan.

C. CISTULA var. MACULATA (Kuetz.) Grun. Boyer, *loc. cit.*, p. 280 (1927); Mills, Index Diat., pp. 548, 560 (1934).
*Cymbella maculata* Kuetz.
Thomas & Chase 1887, p. 328, as *C. maculata:* **Cook,** Chicago—Lake Michigan.

C. CUSPIDATA Kuetz. Boyer, *loc. cit.*, p. 275 (1927).
Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Ahlstrom 1936, p. 291: **Cook,** Chicago, Evanston—Lake Michigan. Agersborg 1930, pp. 106, 113: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

C. CYMBIFORMIS (Kuetz.) Breb. Boyer, *loc. cit.*, p. 279 (1927).
Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

C. EHRENBERGII Kuetz. Boyer, *loc. cit.*, p. 275 (1927).
Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

C. GRACILIS (Rab.) Cl. Boyer, *loc. cit.*, p. 284 (1927).
Transeau: **Clark**—Whetstone Creek (Oct.).

C. LACUSTRIS (Ag.) Cl. Boyer, *loc. cit.* (1927).
*Colletonema lacustre* V. H.
Transeau: **Coles**—Indian Creek (Nov.). Thomas & Chase 1887, p. 328, as *Colletonema lacustre:* **Cook,** Chicago—Lake Michigan.

C. LAEVIS Naeg. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 353. f. 643 (1934).
Ahlstrom 1936, p. 291: **Cook,** Evanston—Lake Michigan.

C. LANCEOLATA (Ehr.) V. H. Hustedt, *loc. cit.*, p. 364. f. 679 (1930).
Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

C. LEPTOCEROS (Ehr.?) Grun. Hustedt, *loc. cit.*, p. 358 (1930).
Thomas & Chase 1887, p. 328, as *C. leptoceros* K.: **Cook,** Chicago—Lake Michigan.

C. NAVICULIFORMIS Auersw. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 281 (1927).
*Cymbella anglica* Lagerst.
Thomas & Chase 1887, p. 328, also as *C. anglica;* Ahlstrom 1936, p. 291: **Cook,** Chicago, Evanston—Lake Michigan.

C. PARVA (W. Sm.) Cl. Boyer, *loc. cit.* (1927).
Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

C. PROSTRATA (Berk.) Cl. Boyer, *loc. cit.*, p. 285 (1927); Mills, Index Diat., p. 564 (1934).

*Encyonema prostratum* Ralfs

Thomas & Chase 1887, p. 328; Eddy 1927B, pp. 208, 221, as *Encyonema prostratum:* **Cook,** Chicago—Lake Michigan (Oct., Nov.). Kofoid 1908, p. 50, as *Encyonema prostratum:* **Mason,** Havana—Illinois River.

C. TRIANGULUM (Ehr.) Cl. Boyer, *loc. cit.*, p. 284 (1927).

*Cymbella rotundata* Chase; *Encyonema triangulum* Kuetz.

Transeau: **Coles,** Charleston—Indian Creek and other small streams (Mar.–May, Oct., Nov.); Dorans—ditch (May). Thomas & Chase 1887, p. 328, as *C. rotundata* and *Encyonema triangulum:* **Cook,** Chicago—Lake Michigan.

C. TUMIDA (Breb.) V. H. Boyer, *loc. cit.*, p. 280 (1927); Mills, Index Diat., pp. 443, 568 (1934).

*Cymbella stromatophora* Grun.; *Cocconema cymbiforme* Rab.

Transeau, as *Cocconema cymbiforme:* **Coles,** Charleston—pond (Apr.). Briggs 1872A, p. 43, as *Cocconema cymbiforme;* Thomas & Chase 1887, p. 328, as *C. stromatophora:* **Cook,** Chicago—Lake Michigan.

C. TURGIDA Greg. Boyer, *loc. cit.*, p. 283 (1927).

Transeau: **Clark**—Whetstone Creek (Oct.).

C. VENTRICOSA Kuetz. Boyer, *loc. cit.*, p. 285 (1927).

*Encyonema caespitosum* Kuetz.; *E. ventricosum* Kuetz.

Transeau: **Coles,** Charleston—Indian Creek and other small streams and ponds (Oct., Nov.). Briggs 1872A, p. 43, also as *Encyonema caespitosum;* Thomas & Chase 1887, p. 328, as *Encyonema caespitosum* and *Encyonema ventricosum;* Jelliffe 1893, p. 310, as *Encyonema ventricosum:* **Cook,** Chicago—Lake Michigan.

## EPITHEMIA Brebisson, 1838

E. ARGUS (Ehr.) Kuetz. Boyer, *loc. cit.*, p. 489 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

E. ARGUS var. ALPESTRIS (W. Sm.) Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 383. f. 727b (1930).

*Epithemia alpestris* W. Smith; *Epithemia argus* var. *amphicephala* Grun.

Briggs 1872A, p. 43, as *E. alpestris;* Thomas & Chase 1887, p. 328, as *E. argus* var. *amphicephala:* **Cook,** Chicago—Lake Michigan.

E. MUELLERI Fricke. Hustedt, *loc. cit.*, p. 384. f. 728 (1930).

Ahlstrom 1936, p. 291: **Cook,** Evanston—Lake Michigan.

E. OCELLATA (Ehr.) Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 490 (1927).
Briggs 1872A, p. 43: **Cook,** Chicago—Lake Michigan.

E. SOREX Kuetz. Boyer, *loc. cit.*, p. 489 (1927).
Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

E. TURGIDA (Ehr.) Kuetz. Boyer, *loc. cit.*, p. 488 (1927).
Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Ahlstrom 1936, p. 291: **Cook,** Chicago, Evanston—Lake Michigan. Kofoid 1908, p. 50: **Mason,** Havana—Illinois River.

E. TURGIDA var. WESTERMANII (Ehr.) Grun. Boyer, *loc. cit.* (1927).
*Eunotia westermanii* Ehr.
Bailey 1845, p. 34, as *Eunotia westermanii:* **St. Clair**—Mississippi River.

E. ZEBRA (Ehr.) Kuetz. Boyer, *loc. cit.*, p. 490 (1927).
Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

## RHOPALODIA O. Mueller, 1895

R. GIBBA (Kuetz.) Muell. Boyer, *loc. cit.*, p. 491 (1927).
*Epithemia gibba* Kuetz.
Thomas & Chase 1887, p. 328, as *Epithemia gibba:* **Cook,** Chicago—Lake Michigan.

R. VENTRICOSA (Kuetz.) Muell. Boyer, *loc. cit.* (1927).
*Epithemia ventricosa* Kuetz.
Transeau: **Clark**—Whetstone Creek (Oct.). **Coles,** Charleston—ponds and small streams (Mar., Oct., Nov.). Thomas & Chase 1887, p. 328, as *Epithemia ventricosa:* **Cook,** Chicago—Lake Michigan.

## Suborder: SURIRELLINEAE
## Family: NITZSCHIACEAE

## DENTICULA Kuetzing, 1844; Grunow, 1862

D. TENUIS Kuetz. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 381. f. 723 (1930).
Transeau: **Coles,** Charleston—pond (Mar.).

## HANTZSCHIA Grunow, 1880

H. AMPHIOXYS (Ehr.) Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 528 (1927).
*Nitzschia amphioxys* (Ehr.) Kuetz.
Transeau: **Coles,** Charleston—small streams (Mar., Nov.); Loxa—ditch (Apr.). Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan. Kofoid 1908, p. 57, as *Nitzschia amphioxys:* **Mason,** Havana—Illinois River ("winter").

H. AMPHIOXYS f. CAPITATA Muell. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 394. f. 748 (1930).

Transeau: **Coles,** Charleston—small stream (Oct.).

H. AMPHIOXYS var. VIVAX (Hantz.) Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 528 (1927).

Thomas & Chase 1887, p. 329: **Cook,** Chicago—Lake Michigan.

## NITZSCHIA Hassall, 1845

N. ACICULARIS (Kuetz.) W. Smith. Boyer, *loc cit.*, p. 525 (1927).

Transeau: **Coles,** Charleston—small stream (Oct.).

N. CLAUSII Hantz. Boyer, *loc. cit.*, p. 515 (1927).

Transeau: **Coles,** Mattoon—swamp (Apr.).

N. CLOSTERIUM (Ehr.) W. Smith. Boyer, *loc. cit.*, p. 526 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan

N. COMMUTATA Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 405. f. 774 (1930).

Transeau: **Coles,** Charleston—pond and creek (Apr.).

N. DENTICULA Grun. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 506 (1927).

Thomas & Chase, 1887, p. 330: **Cook,** Chicago—Lake Michigan.

N. DISSIPATA (Kuetz.) Grun. Boyer, *loc. cit.*, p. 512 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

N. HUNGARICA Grun. Boyer, *loc. cit.*, p. 498 (1927).

Transeau: **Clark**—Whetstone Creek (Oct.). **Coles,** Charleston—small streams (Jan., Apr.). Briggs 1872A, p. 44; Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

N. LINEARIS (Ag.) W. Smith. Boyer, *loc. cit.*, p. 518 (1927).

Transeau: **Coles,** Charleston—small streams (Apr., Nov.); Embarrass—small stream (Mar.). Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan. Agersborg 1930, p. 110: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

N. LINEARIS var. TENUIS (W. Sm.) Grun. Boyer, *loc. cit.* (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

N. PALEA (Kuetz.) W. Smith. Boyer, *loc. cit.*, p. 521 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

N. PALEA var. TENUIROSTRIS Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 416. f. 801a (1930).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

N. SIGMOIDEA (Nitz.) W. Smith. Boyer, Proc. Acad. Nat. Sci. Phila. 79(Suppl. 2): 513 (1927).

Eddy 1934, p. 387: **Champaign,** Mahomet—Sangamon River (May, Sept.). Transeau: **Coles,** Charleston—pond and small stream (Mar.). Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan. Kofoid 1903, p. 516; 1908, p. 57: **Mason,** Havana

—Illinois River; Topeka—Quiver Creek (Dec., Jan.). Purdy 1930, p. 68: **Will,** Lockport—DesPlaines River (Oct.).

N. SINUATA (W. Sm.) Grun. Boyer, *loc. cit.*, p. 506 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

N. SINUATA var. TABELLARIA Grun. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 409. f. 782 (1930); Mills, Index Diat., pp. 1234, 1237 (1934).

Thomas & Chase 1887, p. 330, as *N. tabellaria:* **Cook,** Chicago—in Lake Michigan.

N. VERMICULARIS (Kuetz.) Hantz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 514 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

## Family: SURIRELLACEAE

### CAMPYLODISCUS Ehrenberg, 1840

C. NORICUS Ehr. Boyer, *loc. cit.*, p. 554 (1927).

Thomas & Chase 1887, p. 328: **Cook,** Chicago—Lake Michigan.

### CYMATOPLEURA W. Smith, 1851

C. ELLIPTICA (Breb.) W. Smith. Boyer, *loc. cit.*, p. 532 (1927); Mills, Index Diat., p. 1450 (1934).

*Sphinctocystis elliptica* (Kuetz.) Kuntze

Eddy 1934, p. 387, as *Sphinctocystis elliptica:* **Champaign,** Mahomet—Sangamon River (May, Sept.). Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Eddy 1927B, pp. 208, 215, 221, as *Sphinctocystis elliptica;* Daily 1938, p. 79: **Cook,** Chicago, Evanston—Lake Michigan (July).

C. ELLIPTICA var. HIBERNICA (W. Sm.) Hust. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 427 f. 827 (1930); Mills, Index Diat., p. 537 (1934).

*Cymatopleura hibernica* W. Smith

Thomas & Chase 1887, p. 328, as *C. hibernica:* **Cook,** Chicago—Lake Michigan.

C. ELLIPTICA f. SPIRALIS (Chase) Boy. Boyer, Proc. Acad. Nat. Sci. Phila. 79(Suppl. 2): 533 (1927); Mills, *loc. cit.*, pp. 536, 540 (1930).

*Cymatopleura spiralis* Chase

Thomas & Chase 1887, p. 328, as *C. spiralis:* **Cook,** Chicago—Lake Michigan.

C. SOLEA (Breb.) W. Smith. Boyer, *loc. cit.*, p. 532 (1927).

*Sphinctocystis librilis* Hass.

Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328; Jelliffe 1893, p. 311 (Cook). Kofoid 1903, p. 516; 1908, p. 49 (Mason). Eddy 1927B, pp. 208,

215, 221 (Cook); 1931A, pp. 483, 486 (Cass, Macon, Piatt, Sangamon); 1934, p. 387 as *Sphinctocystis librilis* (Champaign), Daily 1938, p. 79 (Cook).

**Cass,** Chandlerville—Sangamon River (Sept.). **Champaign,** Mahomet—Sangamon River (July–Sept., Dec.). **Cook,** Chicago, Evanston—Lake Michigan (June–Nov.). **Macon,** Harristown—Sangamon River (Sept.). **Mason,** Havana—Illinois River ("mainly winter"); Topeka—Quiver Creek (Sept.–Apr.). **Piatt,** Monticello—Sangamon River (Sept.). **Sangamon,** Riverton—Sangamon River (July).

C. SOLEA var. APICULATA (W. Sm.) Ralfs. Boyer, *loc. cit.* (1927).

*Cymatopleura apiculata* W. Smith

Briggs 1872A, p. 43; Thomas & Chase 1887, p. 328, as *C. apiculata:* **Cook,** Chicago—Lake Michigan.

C. SOLEA var. SUBCONSTRICTA Muell. Mills, Index Diat., p. 540 (1934).

Transeau: **Coles,** Charleston—small streams (Oct., Mar.).

C. SOLEA var. VULGARIS Meist. Mills, *loc. cit.* (1934).

Transeau: **Coles,** Charleston—creek (Dec., Jan.).

## SURIRELLA Turpin, 1828

S. ANGUSTA Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Supp. 2): 542 (1927).

Transeau: **Coles,** Dorans—ditch (May). Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. APICULATA W. Smith. Mills, Index Diat., pp. 1506, 1507 (1934).

Transeau: **Coles,** Charleston—small streams (Jan., Mar., Apr.).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. BISERIATA Breb. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 535 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. BISERIATA var. BIFRONS (Ehr.) Hust. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 433. f. 833 (1930).

Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

S. DIDYMA Kuetz. Hustedt, *loc. cit.*, p. 437. f. 848, 849 (1930).

Ahlstrom 1936, p. 292: **Cook,** Evanston—Lake Michigan.

S. ELEGANS Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 537 (1927).

Jelliffe 1893, p. 311: **Cook,** Chicago—Lake Michigan.

S. ELEGANS var. NORVEGICA (Eulenst.) Brun. Mills, Index Diat., pp. 1516, 1529 (1934).

*Surirella norvegica* Eulenst.

Thomas & Chase 1887, p. 330, as *S. norvegica:* **Cook,** Chicago—Lake Michigan.

S. GUATIMALENSIS Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 543 (1927).

*Surirella cardinalis* Kitton

Thomas & Chase 1887, p. 330, as *S. cardinalis:* **Cook,** Chicago—Lake Michigan.

S. LINEARIS W. Smith. Boyer, *loc. cit.*, p. 538 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. LINEARIS var. CONSTRICTA (Ehr.) Grun. Hustedt in Pascher, Suesswass-fl. Mitteleur. 10: 434. f. 839 (1930).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. MINUTA Breb. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 542 (1927); Mills, Index Diat., pp. 1527, 1531 (1934).

*Surirella ovalis* var. *minuta* (Breb.) Kirch.

Transeau: **Coles,** Charleston, Dorans—small streams and ditches (Mar.–May); Kofoid 1908, p. 58, as *S. ovalis* var. *minuta:* **Mason,** Havana—Illinois River (all months).

S. OREGONICA Ehr. Mills, Index Diat., p. 1530 (1934).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. OVALIS Breb. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 541 (1927).

Transeau: **Coles,** Mattoon—swamp (Apr.).

S. OVALIS var. PINNATA V. H. Mills, Index Diat., p. 1531 (1934).

Transeau: **Coles,** Charleston—small stream (Oct.).

S. OVATA Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 541 (1927).

Transeau: **Coles,** Charleston—small streams (Jan., Mar.–May, Nov.). Thomas & Chase 1887, p. 330; Daily 1938, p. 79: **Cook,** Chicago, Evanston—Lake Michigan. Kofoid 1903, p. 516: **Mason,** Topeka—Quiver Creek (Sept., Nov., Dec., Mar.).

S. PATELLA Kuetz. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 445. f. 868 (1930).

Transeau: **Coles,** Dorans—ditch (May).

S. ROBUSTA Ehr. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 537 (1927).

Eddy 1934, p. 387: **Champaign,** Mahomet—Sangamon River (July–Sept.); 1927B, pp. 215, 221: **Cook,** Chicago—Lake Michigan (July); 1931A, p. 483: **Macon,** Harristown—Sangamon River (July); 1931B, pp. 457, 480: **Pulaski,** Wetaug—sink-hole ponds (Oct., Apr.); 1931A, p. 486: **Sangamon,** Riverton—Sangamon River (Sept.).

S. SAXONICA Auersw. Boyer, *loc. cit.*, p. 535 (1927).

Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan.

S. SPIRALIS Kuetz. Hustedt in Pascher, Suesswass.-fl. Mitteleur. 10: 445. f. 870 (1930).

Transeau: **Coles,** Charleston—small stream (Mar.). Kofoid 1908, pp. 53, 318: **Fulton**—Spoon River. **Mason,** Topeka—Quiver Creek ("perennial").

S. SPLENDIDA (Ehr.) Kuetz. Boyer, Proc. Acad. Nat. Sci. Phila. 79 (Suppl. 2): 536 (1927).

Babcock 1872A, p. 13; 1872B, p. 104; Briggs 1872A, p. 44; Thomas & Chase 1887, p. 330: **Cook,** Chicago—Lake Michigan. Kofoid 1903, pp. 516, 537: **Fulton**—Spoon River. **Mason,** Havana—Illinois River; Topeka—Quiver Creek (Sept.–Apr.).

Phylum: CHLOROPHYTA
Class: CHLOROPHYCEAE
Order: VOLVOCALES
Family: POLYBLEPHARIDACEAE

CHLORASTER Ehrenberg, 1848

C. GYRANS Ehr. Smith, Freshw. Alg. U. S., p. 312. f. 206 (1933).

Kofoid 1908, pp. 68, 72: **Mason,** Havana—Illinois River (July, Aug.).

Family: CHLAMYDOMONADACEAE

CARTERIA Diesing, 1866

C. MULTIFILIS (Fresen.) Dill. Pascher, Suesswass.-fl. Duetsch. 4: 150. f. 98 (1927).

Kofoid 1908, pp. 68, 70: **Mason,** Havana—Illinois River (Aug.–Feb.).

Family: VOLVOCACEAE

EUDORINA Ehrenberg, 1832

E. ELEGANS Ehr. Tiffany, Contrib. Franz T. Stone Lab. 6: 42. pl. 6. f. 88 (1934).

Kofoid 1898, p. 273 (Fulton, Mason); 1903, p. 516; 1908, pp. 79, 292, 321 (Mason). Collins 1909, p. 134; Transeau 1913B, p. 79 (Coles, Montgomery). Galtsoff 1924, pp. 399, 402, 404, 405 (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy & Simer 1929, p. 62 (Morgan). Eddy 1931A, pp. 474, 479, 481, 484 (Cass, Macon, Menard, Piatt, Sangamon); 1931B, pp. 451, 464 (Pulaski); 1934, pp. 385, 386, 388–391, 396, 399, 400, 403 (Adams, Alexander, Calhoun, Champaign, Cook, Hancock, Henry, Jersey, Lake, Macon, Madison, Mason, Pike, St. Clair, Union, Whiteside). Britton (Cook, Lake, McHenry).

**Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun**—Mississippi River (June). **Carroll**—Mississippi River (July, Sept.). **Cass,** Chandlerville—Sangamon River (June–Sept.). **Champaign,** Urbana—ox-bow pond (Aug.). **Coles,** Charleston—ponds (May–Oct.). **Cook,** Chicago—Lake Michigan; Wheeling—DesPlaines River at Dundee Road, Aug. 8, 1939, #766. **Fulton**—Thompson's Lake (June). **Hancock, Henderson**—Mississippi River (June, July). **Henry,** Colona—Slough (June–Aug.). **Jersey**—Mississippi River (June). **Jo Daviess**—Mississippi River (July, Sept.). **Lake,** Antioch—Grass Lake-Lake Marie Channel, Sept. 14, 1939, #1029; Fox Lake—in Fox Lake, Aug. 25, 1939, #951; Halfday—swamp about 2½ miles W., July 29, 1938, #184; Klondike—Grass Lake, Grass Lake-Fox Lake channel, and small channel entering E. side of Grass Lake, Aug. 25, 1939, #945, 948, 971; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #914; Long Lake—in Long Lake ("summer"). **Macon,** Decatur—Lake Decatur (June–Sept.). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (Feb.–Oct.); Quiver Lake (June); Topeka—Quiver Creek (Apr.). **McHenry,** Greenwood—Nippersink Creek, July 6, 1939, #365, 366; McHenry—swamp E. side of McCullom Lake, July 7, 1939, #401, 402; Richmond—Twin Lakes (Lake Elizabeth), Aug. 2, 1939, #729; Woodstock—pond 2½ miles W., July 8, 1939, #439, 445. **Menard,** Petersburg—Sangamon River (June, Sept.). **Mercer,** New Boston—Mississippi River, Sturgeon Bay (July). **Montgomery,** Coffeen—pond (May). **Morgan,** Meredosia—Illinois River. **Piatt,** Monticello—Sangamon River (Sept.). **Pike**—Mississippi River (June). **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.). **Rock Island**—Mississippi River (July, Sept.). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (July). **St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside,** Erie—Rock River Slough (June–Aug.); Sterling—Rock River ("summer").

## GONIUM Mueller, 1773

G. PECTORALE Muell. Tiffany, *loc. cit.*, p. 41. pl. 15. f. 357 (1934). Collins 1909, p. 132; Transeau 1913B, p. 79: **Coles,** Charleston—ponds and small streams (Jan., June, July). Britton: **Cook,** Niles—shallow intermittent pond at Dempster St. and Milwaukee Ave., Apr. 7, 1939, #224; Sag Bridge—small shallow ponds, July 13, Sept. 8, 1939, #510, 994. Kofoid 1908, pp. 82, 322: **Mason,** Havana—Illinois River (May, Aug., Sept.). Eddy 1931A, pp. 481, 484: **Sangamon,** Riverton, Springfield—Sangamon River (July–Sept.).

G. SOCIALE (Duj.) Warm. Smith, Freshw. Alg. U. S., p. 333 (1934). Transeau 1913B, p. 79: **Coles,** Charleston—pond (Apr.).

## PANDORINA Bory, 1824

P. MORUM Bory. Tiffany, Contrib. Franz. T. Stone Lab. 6: 41. pl. 6. f. 93, 94 (1934).

Johnson & Atwell 1890, p. 19 (Cook). Hempel 1898, p. 327 (Fulton, Mason). Kofoid 1898, p. 273; 1908, pp. 84, 292, 323 (Mason). Collins 1909, p. 132; Transeau 1913B, p. 79 (Clark, Coles, Effingham, Moultrie). Eddy 1931B, p. 464 (Pulaski). Eddy 1931A, pp. 474, 479, 481 (Cass, Macon, Menard, Sangamon). Britton 1940, p. 71 (Cook). Britton (Cook, Lake, McHenry).

**Cass,** Chandlerville—Sangamon River (June, July). **Clark,** Casey—pond (Apr.). **Coles,** Ashmore—pond and bayous (Apr., Oct.); Charleston—small streams and ponds (all months); Lerna—pond (May, June). **Cook,** Argonne Forest Preserve—small ponds and swamps, July 13, Sept. 8, 1939, #473, 495, 504, 505, 520, 522, 529, 534, 998; Tuma Lake, July 14, 1939, #555; Maple Lake, Sept. 8, 1939, #993; Evanston—"Big Ditch" (Oct.); Glenview—small temporary ponds and swamps, July 12, 1939, #470, May 12, 1938, #56, 59; Goeselville—small ponds at Mascouten Forest Preserve, July 14, 1939, #581; Morton Grove—small ponds, May 10, June 23, Oct. 3, 1938, #43, 77, 217; Northbrook—small pond on Techny Road one mile W. of Landwehr Road, June 27, 1938, #110; ponds and swamps at Somme Forest Preserve, May 8, July 3, 1939, #240, 242, 246, 248, 350; Orland Park—small pond and extensive swamp on 131st St. W. of Wolf Road, Sept. 8, 1939, #1016; Palos Park—swamp along 86th Ave., July 14, 1939, #564; Park Ridge—pond, July 12, 1939, #455, DesPlaines River at Touhy Ave., July 12, 1939, #452; Sag Bridge—quarry ponds, Sept. 8, 1939, #1007, 1008; Schnells Corner—small ponds at Elk Grove Forest Preserve, June 23, 1938, Aug. 8, 1939, #95, 790; Skokie—temporary pond on Dempster St. at Milwaukee Ave., June 23, 1938, #84; Wheeling—DesPlaines River at Dundee Road, Aug. 8, 1939, #766. **Effingham,** Effingham—pond (Sept.). **Fulton**—Illinois River and lakes (Jan.–Sept.). **Lake,** Antioch—Grass Lake-Lake Marie channel, Sept. 14, 1939, #1028, 1029; Everett—small pond, May 15, 1938, #71; Fox Lake—Nippersink Lake, July 25, 1939, #599, 602, Aug. 25, 1939, #968, Fox Lake and Nippersink Creek, July 25, 1939, #601, 604; Halfday—swamp and small pond, July 29, 1938, #183, 184; Klondike—Fox Lake, Grass Lake-Fox Lake channel and small channel entering E. side of Grass Lake, Aug. 25, 1939, #945, 948, 950, 971; Libertyville—DesPlaines River,

July 29, 1938, #181. **Macon,** Decatur—Lake Decatur—Lake Decatur (July). **Mason,** Havana—Illinois River and adjacent waters (all months). **McHenry,** Greenwood—Wonder Lake, July 6, 1939, #366; small creek, July 7, 1939, #431; Hartland—north branch of the Kishwaukee River, July 8, 1939, #438; McHenry—swamp on E. side of McCullom Lake, July 6, 1939, #374, 385, 387, 401; Woodstock—ponds and swamps, July 7, 1939, #403, 420, 425, 439, 445. **Menard,** Petersburg—Sangamon River (July, Sept.). **Moultrie,** Sullivan—artificial pond (Aug.). **Pulaski,** Wetaug—sink-hole ponds (Apr., Sept.). **Sangamon,** Riverton, Springfield—Sangamon River (July, Sept.).

## PLATYDORINA Kofoid, 1899

P. CAUDATA Kofoid. Tiffany, *loc. cit.*, p. 43. f. 92 (1934).

Kofoid 1899, p. 419; 1900, p. 542 (Adams, Champaign, Fulton, Mason, Morgan); 1908, pp. 85, 292, 323 (Mason). Collins 1909, p. 134; Galtsoff 1924, pp. 399, 402, 404, 405 (Carroll, Hancock Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy 1931A, pp. 481, 484 (Macon, Menard, Sangamon).

**Adams,** Quincy—Libby Lake (Aug.). **Carroll**—Mississippi River (July, Sept.). **Champaign,** Urbana—Salt Fork (June–Nov.). **Fulton**—Flag, Phelps and Thompsons Lakes (June–Nov.). **Hancock, Henderson, Jo Daviess**—Mississippi River (July–Sept.). **Macon,** Decatur—Lake Decatur (July). **Mason,** Havana—Illinois River (June–Nov., Feb.); Quiver and Matanzas Lakes. **Menard,** Petersburg—Sangamon River (Sept.). **Mercer,** New Boston—Mississippi River (July, Aug.). **Morgan,** Meredosia—Illinois River and Meredosia Lake (June–Nov.). **Rock Island**—Mississippi River (July–Sept.). **Sangamon,** Riverton—Sangamon River (July). **Whiteside**—Mississippi River (July, Sept.).

## PLEODORINA Shaw, 1894

P. CALIFORNICA Shaw. Tiffany, *loc. cit.*, p. 42. pl. 6, 15. f. 91, 362 (1934).

Kofoid 1898, p. 273; 1899, p. 421; 1900, p. 543: **Champaign,** Urbana—Salt Fork (Aug.). Britton: **Cook,** Northbrook—ponds at Somme Forest Preserve, June 27, 1938, #111, 112; Schnells Corner—ponds at Elk Grove Forest Preserve, June 23, 1938, #91, 92. **Lake,** Fox Lake—Nippersink Creek, July 25, 1939, #601. Clinton 1894, p. 383; Hempel 1898, p. 328; Kofoid 1908, pp. 86, 292, 323: **Mason,** Havana—Illinois River and adjacent lakes (May–Oct.). Britton: **McHenry,** Richmond—South Twin Lake

(Lake Elizabeth), Aug. 2, 1939, #729. Eddy 1931B, p. 464: **Pulaski,** Wetaug—sink-hole ponds (Apr., July). Collins 1909, p. 133: ? **County.**

P. ILLINOISENSIS Kofoid. Tiffany, *loc. cit.*, p. 6. f. 90 (1934).

Kofoid 1898, p. 273 (Fulton, Mason); 1908, p. 86 (Mason); Collins 1909, p. 133; Transeau 1913B, p. 79 (Clay). Galtsoff 1924, pp. 399, 402, 404 (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy 1931A, pp. 474, 479, 481, 484 (Cass, Macon, Sangamon); 1931B, pp. 456, 464 (Pulaski); 1934, pp. 388, 403 (Macon).

**Carroll**—Mississippi River (July, Sept.). **Cass,** Chandlerville—Sangamon River (June, July). **Clay,** Sailor Springs—Little Muddy Creek (Aug.). **Fulton**—Thompsons Lake (June). **Hancock, Henderson, Jo Daviess**—Mississippi River (July–Sept.). **Macon,** Decatur—Lake Decatur (June–Sept.). **Mason,** Havana—Illinois River and Quiver Lake ("summer"). **Mercer**—Mississippi River (Aug.). **Pulaski,** Wetaug—sink-hole ponds (July, Sept.). **Rock Island**—Mississippi River (July–Sept.). **Sangamon,** Riverton, Springfield—Sangamon River (June–Sept.). **Whiteside**—Mississippi River (July, Sept.).

## VOLVOX Linnaeus, 1758

V. AUREUS Ehr. Tiffany, *loc. cit.*, p. 43. f. 101 (1934).

Collins 1909, p. 135; Transeau 1913B, p. 79: **Coles,** Ashmore—Polecat Creek (June); Charleston, Lerna—ponds (June, July). Kofoid 1908, p. 91: **Mason,** Havana—Illinois River (Mar.–Aug.).

V. GLOBATOR Linn. Tiffany, *loc. cit.*, f. 102, 103 (1934).

Collins 1909, p. 135; Transeau 1913B, p. 79: **Clark,** Casey—ponds (Apr., May, Nov.). **Coles,** Ashmore, Lerna—ponds (Apr.). Johnson & Atwell 1890, p. 19; O'Hanlon 1930, p. 100; Britton: **Cook,** Evanston—"Big Ditch" (Oct.); Palos Park—pond (June); Sag Bridge—small pond, July 13, 1939, #511. Hempel 1898, p. 327: **Fulton**—Illinois River and adjacent lakes (July; "rare in midwinter"). Hempel, *loc. cit.* (1898); Kofoid 1908, p. 91: **Mason,** Havana—Illinois River and adjacent lakes (May–Aug.). Transeau: **Montgomery,** Coffeen—pond (May). Eddy 1931B, p. 451: **Pulaski,** Wetaug—sink-hole pond (Apr.). Transeau: **Richland,** Calhoun—pond (Apr.).

V. SPERMATOSPHAERA Powers. Pascher, Suesswass.-fl. Deutsch. 4: 469 (1927).

Galtsoff 1924, pp. 399, 402: **Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside**—Mississippi River (July–Sept.).

## Family: SPHAERELLACEAE

### SPHAERELLA Sommerfelt, 1824

S. LACUSTRIS (Girod.) Wittr. Hazen, Mem. Torr. Bot. Club 6: 211–246. pl. 86, 87. f. 1–52 (1899).

*Chlamydococcus pluvialis* A. Br.; *Haematococcus pluvialis* Flow. Transeau 1913B, p. 79, as *Haematococcus pluvialis:* **Coles,** Charleston—pool (Mar.). Johnson & Atwell 1890, p. 19, as *Chlamydococcus pluvialis;* Hazen 1899, p. 215: **Cook,** Chicago—cemetery urns; Evanston—in "Big Ditch" and a small stream (Sept.–Nov.); cemetery urns.

## Order: TETRASPORALES
## Family: PALMELLACEAE

### GLOEOCYSTIS Naegeli, 1849

G. AMPLA Kuetz. Smith, Freshw. Alg. U. S., p. 353. f. 236B (1934). Transeau: **Coles,** Charleston—pond (May). Britton: **Cook,** Sag Bridge—small pond and extensive swamp, Sept. 8, 1939, #1021; Techny—temporary slough along C. & N. R. R., May 12, 1938, #63.

G. GIGAS (Kuetz.) Lag. Tiffany, Contrib. Franz T. Stone Lab. 6: 44. pl. 7. f. 110 (1934).

Transeau: **Coles,** Charleston—pond (May). Kofoid 1908, p. 34: **Mason,** Havana—Illinois River.

G. PLANCTONICA (W. & G. S. West) Lemm. Tiffany, *loc. cit.*, f. 109 (1934).

Daily 1938, p. 80: **Cook,** Evanston—Lake Michigan.

### PALMELLA Lyngbye, 1819; Chodat, 1902

P. MINIATA Leib. Collins, Tufts Coll. Stud. 2(3): 137 (1909).

Transeau: **Clark,** Casey—pond (Apr.).

### SPHAEROCYSTIS Chodat, 1897

S. SCHROETERI Chod. Tiffany, Contrib. Franz T. Stone Lab. 6: 45. pl. 7. f. 108 (1934).

Eddy 1927B, pp. 215, 222; Daily 1938, p. 80; Britton: **Cook,** Chicago, Evanston—Lake Michigan (July); Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43. Britton: **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #258; Fox Lake—opposite Lotus Point in Grass Lake, Aug. 25, 1939, #945; small channel entering E. side of Grass Lake, Aug. 25, 1939, #971. **McHenry,** McHenry—swamp E. of McCullom Lake, July 6, 1939, #374.

Family: TETRASPORACEAE

APIOCYSTIS Naegeli, 1849

A. BRAUNIANA Naeg. Tiffany, *loc. cit.*, p. 46. f. 107, 107A (1934).
Transeau 1913B, p. 79: **Coles,** Charleston—ponds (Apr.). Britton: **Cook,** Glenview—small ponds in swamp about 3 miles W., May 12, 1939, #56, 58.

TETRASPORA Link, 1809

T. GELATINOSA (Vauch.) Desv. Tiffany, *loc. cit.*, p. 45 (1934).
Transeau 1913B, p. 79: **Clark,** Casey—reservoir pond (Sept.). **Coles,** Charleston—campus pond (Sept.).

T. LUBRICA (Roth) Ag. Tiffany, *loc. cit.* (1934).
Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (Mar.–May). Transeau 1913B, p. 79; 1916, p. 124: **Clark,** Casey—ponds and ditches (Apr., May); Whetstone Creek (June). **Coles,** Ashmore, Charleston, Doarns, Lerna—small ponds, pools, ditches, small streams and on rocks in Embarrass River (Jan.–June, Oct.–Dec.); laboratory aquarium (Feb.). **Cumberland,** Greenup—ponds and ditch (Apr., Nov.); Jewett—pond S.E. of (May). **Douglas,** Arcola, Arthur—pond and ditches (May, July). **Edgar,** Paris—reservoir (Mar.). **Effingham,** Effingham—pool and artificial pond (Dec.). **Jasper,** Wheeler—pond (Apr.). **Lawrence,** Pinkstaff—ponds and drain-tile (Mar., Oct.). **Moultrie,** Sullivan—ditch (May). ? **County**—Sangamon River (Aug.).

Order: ULOTRICHALES
Suborder: ULOTRICHINEAE
Family: ULOTRICHACEAE

RADIOFILUM Schmidle, 1894

R. IRREGULARE (Wille) Brunnth. Heering in Pascher, Suesswass.-fl. Deutsch. 6: 40. f. 42–44 (1914).
Britton: **Cook,** Glenview—small pond and swamp about 3 miles W., May 12, 1938, #56.

STICHOCOCCUS Naegeli, 1849; Gay, 1891

S. BACILLARIS Naeg. Hazen, Mem. Torr. Bot. Club 11: 160. pl. 22. f. 1 (1902).
Transeau 1913B, p. 81: **Coles,** Charleston—pool (Apr.); Lerna—pond (May). Field Museum: **Cook,** Chicago—growing abundantly in culture jars, Univ. of Chicago greenhouse, coll. by L. J. King, Jan. 18, 1940.

S. FLACCIDUS (Kuetz.) Gay. Hazen, *loc. cit.*, p. 164. pl. 21. f. 14–17 (1902).

Transeau 1913B, p. 81: **Clark,** Casey—on soil (May). **Coles,** Charleston—on soil (July, Sept., Oct.), small creek (May); Humboldt—ditch (Apr.); Mattoon—swamp (Apr.).

S. SUBTILIS (Kuetz.) Klerck. Hazen, *loc. cit.*, p. 162. pl. 21. f. 10–13 (1902).

Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (May). Transeau 1913B, p. 81: **Coles,** Charleston—small streams, ponds, pools, ditches and swamps (Mar., Apr.), laboratory aquarium (Mar.). Drouet, Field Mus.: **Dupage**—in a rain pool in mud flats of Illinois River opposite Lemont, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938

## ULOTHRIX Kuetzing, 1833

U. TENERRIMA Kuetz. Hazen, *loc. cit.*, p. 151. f. 3–4 (1902).

Britton 1940, p. 71: **Cook,** Morton Grove—small greenhouse reservoir, May 10, 1938, #42. Britton: **Will,** Manteno—ditch on Route 44 about 5 miles N.W., Apr. 18, 1938, #6.

U. VARIABILIS Kuetz. Hazen, *loc. cit.*, p. 152. f. 5–7 (1902).

Transeau 1913B, p. 81; 1913C, p. 33: **Coles,** Charleston—small creek, pools, ditches and drain-tile (Mar., Apr., Oct.). Britton 1940, p. 71: **Cook,** Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43. Britton: **Kankakee,** Kankakee—slough along Route 49, about 5 miles N., Apr. 18, 1938, #5.

U. ZONATA (Weber & Mohr) Kuetz. Hazen, *loc. cit.*, p. 147. pl. 20. f. 1–4 (1902).

Johnson & Atwell 1890, p. 19; Britton 1940, p. 71: **Cook,** Evanston—Lake Michigan (Nov.); Morton Grove—small pond, May 10, 1938, #42; Palos Park—swamp, Sept. 8, 1939, #975. Forbes & Richardson 1913, pp. 502, 503, 506: **Grundy,** Dresden Heights—DesPlaines River (Sept.). Agersborg 1930, p. 106: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.). Forbes & Richardson, *loc. cit.*: **Will,** Lockport—Sanitary Canal and DesPlaines River (Sept.).

## Family: MICROSPORACEAE

## MICROSPORA Thuret, 1850; Lagerheim, 1888

M. FLOCCOSA (Vauch.) Thur. Hazen, *loc. cit.*, p. 173. pl. 24. f. 1–4 (1902).

Transeau: **Montgomery,** Coffeen—(May).

M. PACHYDERMA (Wille) Lag. Collins, Tufts Coll. Stud. 2(3): 193. (1909).

Transeau: **Clark,** Casey—pond (Apr.).

M. QUADRATA Haz. Hazen, Mem. Torr. Bot. Club 11: 178. pl. 24. f. 14, 15 (1902).

Transeau: **Clark,** Casey—pond (Nov.). Britton: **Cook,** Palos Park—swamp, Sept. 8, 1939, #975. Transeau: **Effingham,** Effingham—on sandstone at falls (Dec.).

M. STAGNORUM (Kuetz.) Lag. Hazen, *loc. cit.*, p. 176. pl. 24. f. 12, 13 (1902).

Transeau 1913B, p. 81: **Clark,** Casey—pond drain (May). **Coles,** Ashmore—on rocks at spring (June); Charleston—small streams, ponds, pools and ditches (Jan.–May, Sept., Nov.); Dorans—R. R. pools (May). **Douglas,** Arcola—stockyards (May); Tuscola—pond (May).

M. TUMIDULA Haz. Hazen, *loc. cit.*, p. 177. pl. 24. f. 8–11 (1902).

Transeau 1913B, p. 82: **Coles,** Charleston—ponds and ditches (Mar.–July, Sept., Nov.). Britton: **Cook,** Palos Park—swamp, Sept. 8, 1939, #975.

M. WILLEANA Lag. Hazen, *loc. cit.*, p. 175. pl. 24. f. 5–7 (1902).

Transeau: **Coles,** Ashmore—pond (Oct.); Lerna—pond (Apr.).

## Family: CYLINDROCAPSACEAE

### CYLINDROCAPSA Reinsch, 1867

C. GEMINELLA Wolle. Tiffany, Amer. Midl. Nat. 18: 918. pl. 1. f. 19 (1937).

Transeau: **Clark,** Casey—pond (Sept.). **Coles,** Charleston—ponds (Apr., June, Oct.). Britton: **Cook,** Glenview—small pond and swamp about 3 miles W., July 12, 1939, #466; Northbrook—pond and swamp at Somme Forest Preserve, July 3, Aug. 6, 1939, #358, 359, 763; Sag Bridge—small pond, July 13, 1939, #483. **McHenry,** Harvard—swamp about 3 miles N.E., July 8, 1939, #436; Woodstock—swamp E. of Route 14 about 4 miles S.W., July 7, 1939, #412.

C. GEMINELLA var. MINOR Hansg. Tiffany, *loc. cit.*, f. 20 (1937).

Transeau 1913B, p. 82; 1916, p. 124: **Coles,** Charleston—ponds (July–Nov.). Britton 1940, p. 71: **Cook,** Morton Grove—small pond about 1 mile N.W., May 10, 1938, June 23, 1938, #43, 77; Northbrook—small ponds at Somme Forest Preserve, May 15, June 27, 1938, #65, 66, 113. Transeau: **Lawrence,** Lawrenceville—gravel pit (May); Pinkstaff—Bee Branch Creek (July).

## Family: CHAETOPHORACEAE

### APHANOCHAETE A. Braun, 1851

A. REPENS A. Br. Tiffany, *loc. cit.*, p. 920. f. 18 (1937); Smith, Freshw. Alg. U. S. p. 405 (1934).

*Herposteiron confervicola* Naeg.

Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (June). Transeau 1913B, p. 88; 1916, p. 124, as *Herposteiron confervicola:* **Clark,** Casey—pond (July, Nov.). **Coles,** Ashmore—pond (Apr.); Charleston—ponds (Jan., Apr.–July,Nov.); Lerna—ponds (May). Johnson & Atwell 1890, p. 19; Britton: **Cook,** Evanston—prairie ditches (Mar.); Glenview—swamps and intermittent ponds about 2 miles W., May 12, June 23, 1938, #53, 56, 99; Northbrook—small ponds and swamp on Techny Road just E. of Landwehr Road and Pfingsten Road about 1 mile S. of Techny Road, May 12, 1938, #62, 64; Schnells Corner—small pond at Elk Grove Forest Preserve, June 22, 1939, #323. Transeau: **Effingham,** Effingham—pond and ditch (Dec., Mar.). Britton: **Lake,** Everett—small pond about ¾ mile S., May 10, 1938, #71; Libertyville—swamp E. of, July 14, 1938, #120.

## CHAETOPHORA Schrank, 1789

C. ATTENUATA Haz. Hazen, Mem. Torr. Bot. Club 11: 213. pl. 39. f. 1, 2 (1902).

Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (May, June).

C. ELEGANS (Roth) Ag. Hazen, *loc. cit.*, p. 211. pl. 37. f. 1–3 (1902).

Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (May–July). Transeau 1913B, p. 87: **Clark,** Casey—ponds (Apr.); Whetstone Creek (June). **Coles,** Charleston—ponds, ditches, springs and small streams (all months); Wrightsville—small stream (June). Johnson & Atwell 1890, p. 19; Britton: **Cook,** Evanston—(Apr.); Glenview—swamp and intermittent ponds about 1½ miles W., May 12, 1938, #53, 55–58; Northbrook—small ponds and swamps just E. and W. of Landwehr Road on Techny Road, May 12, 1938, #60, 62, 63; small pond in Somme Forest Preserve, May 15, 1938, #65. Transeau: **Douglas,** Arcola—stockyards (May); Arthur—pond and pools (May). **Jasper,** Newton—pond (May). **Montgomery,** Coffeen—pond (May).

C. INCRASSATA (Huds.) Haz. Hazen, *loc. cit.*, p. 214. pl. 38. f. 2, 3 (1902).

*Chaetophora endiviaefolia* Ag.

Transeau 1913B, p. 87: **Clark,** Casey—ponds (Apr., May). **Coles,** Ashmore—pond (May): Charleston—ponds, pools and small streams (Dec.–May); Dorans—pools (May); Wrightsville—ponds (Apr., May). Johnson & Atwell 1890, p. 19, as *C. endiviaefolia;* Britton: **Cook,** Glenview—swamps and intermittent ponds about 1½ miles W., May 12, 1938, #53, 55–58; Niles—

small pond about ½ mile N. of Dempster St., May 10, 1938, #50; Northbrook—small ponds and swamps just E. and W. of Landwehr Road on Techny Road, May 12, 1938, #62, 63; small pond in Somme Forest Preserve, May 15, 1938, #67; swamp about 3 miles S.W., May 12, 1938, #60; Park Ridge—small ponds at Park Ridge Country Club, May 10, 1938, #45, 46; Techny—intermittent railroad pond, May 12, 1938, #61; small pond about 1½ miles S.W., May 12, 1938, #64; Woodlawn—(Nov.). Transeau: **Cumberland,** Greenup—ditch (Nov.). **Douglas,** Arcola—railroad pools (May); Arthur—ponds and pools (May). Britton: **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #255; Lake Forest—small pond, May 15, 1938, #73.

C. PISIFORMIS (Roth) Ag. Hazen, *loc. cit.*, p. 212. pl. 38. f. 1 (1902).

Britton: **Cook,** Glenview—ponds and swamps about 1½ miles W., May 12, 1938, #53, 56–58; Northbrook—swamp about 3 miles S.W., May 12, 1938, #60; small ponds and swamp on Techny Road just E. and W. of Landwehr Road, May 12, 1938, #27, 28; small pond at Somme Forest Preserve, May 15, 1938, #65; Niles—small pond about ½ mile N. of Dempster St., May 10, 1938, #50. Transeau: **Douglas,** Arcola—pool (May); Arthur—pond (May). Britton: **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #256; Lake Forest—small pond, May 15, 1938, #73.

## CHLOROTYLIUM Kuetzing, 1843

C. MAMMIFORME Kuetz. (Balb.) Kuetz. Heering in Pascher, Suesswass.-fl. Deutsch. 6: 114. f. 165 (1914).

Transeau: **Coles,** Charleston—creek (May.).

## DRAPARNALDIA Bory, 1808

D. ACUTA (Ag.) Kuetz. Hazen, Mem. Torr. Bot. Club 11: 219 (1902).

Transeau: **Clark,** Casey—stream S.W. of. **Coles,** Charleston—small creek. Drouet, Field Mus.: **Cook,** Willow Springs—in swamp along Route 4A E. of, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938.

D. GLOMERATA (Vauch.) Ag. Hazen, *loc. cit.*, p. 220. pl. 40. f. 3, 4 (1902).

Transeau 1913B, p. 87: **Coles,** Charleston—Kickapoo Creek (May); Dorans, Loxa—ponds (May). Johnson & Atwell 1890, p. 19; Britton: **Cook,** Evanston—(Apr.); Glenview—swamps and intermittent ponds about 1½ miles W., May 12, 1938, #56–58; swamp about 3 miles S.W., May 12, 1938, #60; small ponds and swamps on Techny Road just E. and W. of Landwehr Road, May 12, 1938, #62, 63; Techny—small pond about 1½ miles

S.W., May 12, 1938, #64. Transeau: **Cumberland,** Greenup—ditch (Nov.); Jewett—stream (May). **Edgar,** Paris—ditch (Mar.).

D. PLUMOSA (Vauch.) Ag. Hazen, *loc. cit.*, p. 218. f. 1, 2, (1902).
Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (Mar.). Transeau 1913B, p. 87; 1913C, p. 32; 1916, p. 124: **Clark,** Casey—pond, ditches, and swampy stream (Apr.). **Coles,** Ashmore—pond (Apr.); Charleston—small streams, ponds and pools (Nov.–June); Dorans—pools (May); Lerna—creek (May); Wrightsville—small stream (May, June). **Crawford,** Annapolis—(Dec.). **Cumberland,** Greenup—ditch pools (Nov.); Jewett—small stream (May). **Douglas,** Arcola—ditch (May). **Edgar,** Paris—reservoir (Apr.). **Effingham,** Effingham—small stream (Apr.); on sandstone at falls (Dec.). **Jasper,** Newton—smalls tream (Apr.); Wheeler—ditch (Dec.). **Montgomery,** Waggoner—pond and creek (Dec., May).

D. RAVENELII Wolle. Hazen, *loc. cit.*, p. 224 (1902).
Collins 1912, p. 94; Transeau 1913B, p. 88; 1916, p. 124: **Clark,** Casey, Oilfield—ponds (May). **Coles,** Charleston, Lerna, Loxa—ditches, ponds, pools (Mar.–May). **Douglas,** Arcola—pool (May).

## MICROTHAMNION Naegeli, 1849

M. KUETZINGIANUM Naeg. Hazen, *loc. cit.*, p. 191. pl. 26. f. 1; pl. 27. f. 2–4 (1902).
Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (Feb., July). Transeau 1913B, p. 86: **Coles,** Charleston—creek 3 miles W. of (June). Britton: **Cook,** Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43.

M. STRICTISSIMUM Rab. Hazen, *loc. cit.*, pl. 26. f. 2–5 (1902).
Transeau 1913B, p. 87: **Clark,** Casey—pond (Nov.). **Coles,** Charleston—small streams, ponds and pools (Mar., Nov., Dec.).

## STIGEOCLONIUM Kuetzing, 1843

S. GLOMERATUM (Haz.) Coll. Collins, Tufts Coll. Stud. 2(3): 301 (1909).
Transeau 1913B, p. 87: **Coles,** Charleston—ponds, pools and ditches (Apr.).

S. LONGIPILUM Kuetz. Heering in Pascher, Suesswass.-fl. Deutsch. 6: 76. f. 104 (1914).
Johnson & Atwell 1890, p. 19: **Cook,** Evanston—(Apr.).

S. LUBRICUM (Dillw.) Kuetz. Collins, Tufts Coll. Stud. 2: 298. f. 84 (1909).
Forbes & Richardson 1913, pp. 500, 528: **LaSalle,** Starved Rock—Illinois River (Sept., Oct.). **Putnam,** Hennepin—Illinois River.

S. LUBRICUM var. VARIANS (Haz.) Coll. Collins, *loc. cit.* (1909). Transeau 1913B, p. 87; 1913C, p. 32; 1916, p. 124: **Clark,** Casey—pond and swampy stream (Apr.); Westfield—brook 1½ miles W. of (June); artesian pond (Apr.). **Coles,** Charleston—small streams, pools, draintile and ditches (Jan.–May, Oct., Nov.).

S. NANUM (Dillw.) Kuetz. Collins, *loc. cit.*, p. 300 (1909). Transeau 1913B, p. 87: **Coles,** Ashmore—Polecat Creek cut-off (Apr.).

S. STAGNATILE (Hazen) Coll. Collins, *loc. cit.*, p. 301 (1909). Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of, (Mar., Apr., Nov.). Transeau 1913B, p. 87: **Coles,** Charleston—small stream, ditches and pools (Mar.). Britton: **Cook,** Morton Grove—small reservoir at greenhouse, May 10, 1938, #42. Transeau: **Douglas,** Arcola—stockyards (May). **Effingham**—small stream (Dec.).

S. SUBSECUNDUM Kuetz. Collins, *loc. cit.* (1909). Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (May). Britton 1940, p. 71: **Cook,** Glenview—intermittent pond in swamp about 1½ miles W. Apr. 7, 1938, #228.

S. TENUE (Ag.) Kuetz. Collins, *loc. cit.*, p. 300 (1909). Forbes & Richardson 1913, pp. 500, 502, 503, 506, 513, 520, 528, 531, 535: **Bureau,** Springvalley—Illinois River (Oct.). Transeau 1913B, p. 87: **Clark,** Casey—ditch (Apr.). **Coles,** Charleston—pond (Apr.); campus creek and other small streams (Mar.). Johnson & Atwell 1890, p. 19: **Cook,** Woodlawn—(Mar.). Forbes & Richardson, *loc. cit.*: **Grundy,** Dresden Heights—Des Plaines River (Aug., Sept.); Morris—Illinois River (July). **La Salle,** Marseilles—Illinois River (July–Oct.). **Marshall,** Henry—Illinois River. **Peoria,** Chillicothe—Illinois River. **Putnam,** Hennepin—Illinois River. **Will,** Lockport—Sanitary Canal, Des Plaines River (Sept.).

## Family: PROTOCOCCACEAE

### PROTOCOCCUS Agardh, 1824

P. VIRIDIS Ag. Smith, Freshw. Alg. U. S., p. 407. f. 277 (1933). Johnson & Atwell 1890, p. 19: **Cook,** Evanston—(all months).

## Family: COLEOCHAETACEAE

### COLEOCHAETE de Brebisson, 1844

C. IRREGULARIS Pringsh. Collins, Tufts Coll. Stud. 2(3): 313 (1909). Transeau 1913B, p. 88: **Clark,** Casey—pond (Sept.). **Coles,** Charleston—ponds (May, Nov., Dec.). Wesley 1928, p. 2: **Cook,** Chicago—lagoon in Washington Park.

C. NITELLARUM Jost. Collins, *loc. cit.* (1909).
Transeau 1913B, p. 88: **Clark,** Casey—pond (Aug.). **Coles,** Charleston—ponds (May, Sept.).

C. ORBICULARIS Pringsh. Collins, *loc. cit.*, p. 314 (1909).
Transeau 1913B, p. 88: **Coles,** Charleston—pond (Apr.), laboratory aquarium (Mar.). Wesley 1928, p. 2; Britton 1940, p. 71: **Cook,** Chicago—lagoon in Washington Park (all months).

C. SCUTATA Breb. Collins, *loc. cit.* (1909).
Transeau 1913B, p. 88; 1916, p. 124: **Clark,** Casey—pond (Apr.). **Coles,** Ashmore, Charleston, Lerna—ponds and pools (Apr.–July, Oct.–Dec.). Wesley 1928, p. 2; Britton: **Cook,** Chicago—lagoon in Washington Park (all months); Glenview—small temporary ponds in swamps about 1½ miles W. May 12, 1938, #53, 55, 56, 58, Apr. 7, 1939, #228; Northbrook—swamp along Landwehr Road about 1½ miles S. of Techny Road, C. M. & St. P. R. R. slough S. of Techny Road, small pond and swamp on Techny Road just W. of Landwehr Road, small pond on Pfingsten Road about 1 mile S. of Techny Road, and small ponds and swamps in Somme Forest Preserve, May 12, 1938, #28, 30, 60, 61, 65, 66. Transeau: **Jasper,** Newton—lily pond (May).

C. SOLUTA (Breb.) Pringsh. Collins, *loc. cit.* (1909).
Wesley 1928, p. 2: **Cook,** Chicago—lagoon in Washington Park (all months).

### CHAETOSPHAERIDIUM Klebahn, 1892

C. GLOBOSUM (Nordst.) Kleb. Collins, *loc. cit.*, p. 281 (1909).
Transeau 1913B, p. 87: **Coles,** Charleston—pond (Dec.).

C. PRINGSHEIMII Kleb. Collins, *loc. cit.* (1909).
Transeau: **Coles,** Charleston—small stream (Feb., Mar.).

## Suborder: CLADOPHORINEAE
## Family: CLADOPHORACEAE

### BASICLADIA Hoffmann & Tilden, 1930

B. CHELONUM (Coll.) Hoffm. & Tild. Hoffmann & Tilden, Bot. Gaz. 89: 382. f. 1 (1930).
Marshall & Hague 1938, pp. 111, 112: **Cook,** Argonne Forest Preserve—Maple Lake (Aug.).

### CLADOPHORA Kuetzing, 1843

C. CANALICULARIS (Roth) Kuetz. Collins, Tufts Coll. Stud. 2(3): 351 (1909).
Johnson & Atwell 1890, p. 19: **Cook,** Lake Michigan—(Sept.).

C. CRISPATA (Roth) Kuetz. Collins, *loc. cit.*, p. 354 (1909).
Forbes & Richardson 1913, pp. 528, 531, 535: **Bureau,** Spring

Valley—Illinois River (Oct.). Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (June). Transeau 1913B, p. 89: **Coles,** Charleston—ponds and small streams (Apr., Sept.–Nov.). Forbes & Richardson, *loc. cit.:* **LaSalle,** Starved Rock—Illinois River. Richardson 1930, p. 107: **Mason,** Havana—Illinois River. Forbes & Richardson, *loc. cit.:* **Peoria**—Illinois River between Henry and Chillicothe. Purdy 1930, pp. 66, 70: **Will,** Lockport—DesPlaines River (May).

C. FRACTA (Dillw.) Kuetz. Collins, *loc. cit.*, p. 353 (1909).
Transeau 1913B, p. 89; 1916, p. 125: **Clark,** Casey—ponds (May, Nov.). **Coles,** Charleston—ponds (all months). Field Museum: **Cook,** Chicago—in shallow water in lake in Jackson Park, coll. by F. Drouet, Sept. 25, 1938; attached to rocks in quarry pool, 92nd St. and Stony Island Ave., coll. by P. D. Voth and F. Drouet, Sept. 24, 1938.

C. FRACTA f. FLOWTOWIANA Brand. Heering in Pascher, Suesswass.-fl. Deutsch. 7: 50 (1921).
*Cladophora flowtowiana* Kuetz.
Johnson & Atwell 1890, p. 19, as *C. flowtowiana:* **Cook,** Evanston—in "Big Ditch" (Mar.).

C. GLOMERATA (L.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 350 (1909). Forbes 1883B, p. 84 (Effingham); 1888B, p. 537; Johnson & Atwell 1890, p. 19 (Cook). Forbes & Richardson 1913, pp. 507, 528, 535 (Grundy, LaSalle, Marshall, Peoria). Transeau 1913B, p. 88; 1913C, p. 34; 1916, p. 125 (Clark, Coles, Edgar, Effingham, Jasper, Lawrence). Eddy 1927A, p. 128 (Champaign). Purdy 1930, pp. 65, 66, 70 (Will). Richardson 1930, p. 107 (Mason). Field Museum 1938 (Cook).

**Champaign,** Urbana—lake in Crystal Lake Park ("spring, summer, fall"). **Clark**—Whetstone Creek (Oct., June). **Coles,** Ashmore—Polecat Creek (June, Oct.), pools (June); Charleston—Embarrass River, Kickapoo Creek and other small streams, ponds, pools and ditches (all months), on back of snapping turtle (May); Mattoon—small stream (June). **Cook,** Chicago—on rocks in Lake Michigan at 75th St., coll. by J. A. Steyermark, Nov. 5, 1938; Woodlawn (Mar.). **Edgar,** Paris—reservoir (July). **Effingham,** Effingham—(Sept.). **Grundy,** Dresden Heights—Kankakee River. **Jasper,** Newton—Embarrass River (Sept.). **LaSalle,** Starved Rock—Illinois River. **Lawrence,** Lawrenceville—stream, small pond and ditch N.E. of (July–Sept.); Pinkstaff—Bee Branch Creek and pond (June, Sept.–Nov.). **Marshall,** Henry—Illinois River. **Mason,** Havana—Illinois River. **Peoria,** Chillicothe—Illinois River. **Will,** Lockport—DesPlaines River (May–Nov.).

C. KUETZINGIANA Grun. Collins, *loc. cit.*, p. 352 (1909).
Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream N. of (Aug.).

## PITHOPHORA Wittrock, 1877

P. KEWENSIS Wittr. Heering in Pascher, Suesswass.-fl. Deutsch. 7: 62. f. 56 (1921).
Transeau: **Coles,** Charleston—ponds (Jan., June, Dec.).

P. OEDOGONIA (Mont.) Wittr. Collins, Tufts Coll. Stud. 2(3): 363 (1909).
Field Museum 1939: **Cook,** Chicago—floating in shallow water of lake, 95th St. at 104th Ave., coll. by G. T. Velasquez, D. Richards and F. Drouet, Aug. 4, 1939.

P. VARIA Wille. Collins, *loc. cit.*, p. 364 (1909).
Collins 1909, p. 364; Transeau 1913B, p. 89; 1916, p. 125: **Clark,** Casey—ponds (July, Sept., Oct.). **Coles,** Ashmore, Charleston—ponds and pools (all months), laboratory aquaria (Nov.). Britton: **Cook,** Northbrook—pond and swamp in Somme Forest Preserve, May 15, 1938, #66; Palos Park—swamp, May 15, 1938, #983; Sag Bridge—ponds and extensive swamp, Sept. 8, 1939, #1000, 1007. Transeau: **Effingham**—pond E. of (Sept.).

## RHIZOCLONIUM Kuetzing, 1834

R. FONTANUM Kuetz. Collins, *loc. cit.*, p. 330 (1909).
Collins 1909, p. 330; Transeau 1913B, p. 88; 1916, p. 125: **Coles,** Ashmore—pond (June); Charleston—ponds and small stream (all months).

R. HIEROGLYPHICUM (Ag.) Kuetz. Collins, *loc. cit.*, p. 329 (1909).
Collins 1909, p. 329; Transeau 1913B, p. 88; 1913C, p. 34; 1916, p. 125: **Clark**—Whetstone Creek (Oct.); Casey—ponds (July, Sept., Oct.). **Coles,** Ashmore—pond, bayou and Polecat Creek (June, Oct.–Dec.); Charleston—ponds and small streams (all months), laboratory aquaria (Oct., Jan.), soil in greenhouse (Jan.); Humboldt—creek (June). Field Museum: **Cook,** Chicago—in water tanks in greenhouse, Univ. of Chicago, coll. by P. D. Voth, J. M. Beal and F. Drouet, Oct. 5, 1938, and by D. Richards, Feb. 18, 1939; in lagoon in Jackson Park, coll. by D. Richards and F. Drouet, Oct. 16, 1940. Transeau: **Douglas,** Arcola—pond (May, July); Arthur—drainage ditch (May). **Edgar,** Paris—reservoir (May, July). **Jasper,** Newton—lily pond (Aug.). **Lawrence,** Lawrenceville—small pond 4 miles N.E. and Beaver Ditch (Aug.); Pinkstaff—Bee Branch Creek, E. of (July, Nov.), bayou (Dec.). **Moultrie,** Sullivan—ponds (July). Eddy 1925, p. 146: **Vermilion,** Danville—strip mine pond.

## Order: OEDOGONIALES
## Family: OEDOGONIACEAE

### BULBOCHAETE Agardh, 1817

B. BREBISSONII Kuetz. Tiffany, N. Am. Fl. 11: 7. pl. 1. f. 9 (1937). Transeau 1913B, p. 86: **Coles,** Charleston—ponds (May, July). Tiffany 1928, p. 135; 1930, p. 33; 1937, p. 7; 1939, p. 91.

B. CRASSIUSCULA Nordst. Tiffany, *loc. cit.*, p. 10. pl. 4. f. 32, 33 (1937). Transeau 1913B, p. 86; 1916, p. 124: **Coles,** Lerna—pond (Apr., May). Tiffany 1928, p. 143; 1930, p. 41; 1937, p. 10; 1939, p. 91.

B. CRENULATA Pringsh. Tiffany, *loc. cit.*, p. 7. pl. 2. f. 17 (1937). Transeau: **Coles,** Charleston—pond (Apr.). Johnson & Atwell 1890, p. 19: **Cook**—Lakeside (May). Tiffany 1928, p. 136; 1930, p. 34; 1937, p. 7; 1939, p. 91.

B. FURBERAE Coll. Tiffany, *loc. cit.*, p. 7. f. 12 (1937). Britton: **Cook,** Glenview—swamp and temporary pond about 1½ miles W., May 12, 1938, #53.

B. GIGANTEA Pringsh. Tiffany, *loc. cit.*, p. 9. pl. 3. f. 24, 25 (1937). Britton: **Cook,** Glenview—swamps and temporary ponds about 1½ miles W., May 12, 1938, #53, 56: Techny—swamp about 2 miles S.W., May 12, 1938, #60.

B. HILOENSIS (Nordst.) Tiff. Tiffany, *loc. cit.*, p. 13. pl. 5. f. 50 (1937). Britton: **Cook,** Niles—small pond about 1 mile N., May 10, 1938, #50.

B. INSIGNIS Pringsh. Tiffany, *loc. cit.*, p. 14. f. 51 (1937). Transeau: **Montgomery,** Coffeen—pond (May). Tiffany 1928, p. 150; 1930, p. 48; 1937, p. 14; 1939, p. 91.

B. INTERMEDIA DeBary. Tiffany, *loc. cit.*, p. 8. pl. 2. f. 14 (1937). Transeau 1913B, p. 86: **Coles,** Ashmore, Charleston—ponds (May, July). Britton: **Cook,** Northbrook—small pond and swamp along Techny Road just E. and W. of Landwehr Road, May 12, 1938, #62, 63. Transeau: **Douglas,** Arthur—pond (May). Tiffany 1928, p. 137; 1930, p. 35; 1937, p. 8; 1939, p. 91.

B. MINOR A. Br. Tiffany, *loc. cit.*, p. 13. pl. 5. f. 44 (1937). Tiffany 1928, p. 149; 1930, p. 47; 1937, p. 13; 1939, p. 91.

B. MIRABILIS Wittr. Tiffany, *loc. cit.*, p. 6. pl. 1. f. 4 (1937). Tiffany 1928, p. 134; 1930, p. 32; 1937, p. 6; 1939, p. 91.

B. NANA Wittr. Tiffany, *loc. cit.*, p. 5. f. 7 (1937). Tiffany 1937, p. 5; 1939, p. 91.

B. NORDSTEDTII Wittr. Tiffany, *loc. cit.*, p. 8. pl. 2. f. 20 (1937). Transeau: **Coles,** Ashmore, Charleston, Lerna—ponds (Apr., May). **Douglas,** Arthur—pond (May). **Montgomery,** Coffeen—pond (May). Tiffany 1928, p. 139; 1930, p. 37; 1937, p. 8; 1939, p. 91.

B. RECTANGULARIS Wittr. Tiffany, *loc. cit.*, p. 13. pl. 5. f. 53 (1937). Transeau 1913B, p. 86: **Coles,** Charleston—ponds (May). Tiffany 1928, p. 147; 1930, p. 45; 1937, p. 13.

B. REPANDA Wittr. Tiffany, *loc. cit.*, p. 12. pl. 6. f. 57 (1937). Britton: **Cook,** Glenview—swamps and temporary ponds about 1½ miles W., May 12, 1938, #53, 56; Techny—swamp about 2 miles S.W., May 12, 1938, #60.

B. RETICULATA Nordst. Tiffany, *loc. cit.*, p. 14. pl. 5. f. 52 (1937).
*Bulbochaete insignis* var. *reticulata* (Nordst.) Hirn
Transeau: **Montgomery,** Coffeen—pond (May). Tiffany 1928, p. 151; 1930, p. 49, as *B. i.* var. *reticulata;* 1937, p. 14; 1939, p. 91.

B. SUBINTERMEDIA Elfv. Tiffany, Oedog. Monog., p. 36. pl. 2. f. 15 (1930).
Britton: **Cook,** Glenview—swamps and small temporary ponds about 1½ miles W., May 12, 1938, #56, 58; Techny—swamp about 2 miles S.W., May 12, 1938, #60.

B. VARIANS Wittr. Tiffany, N. Am. Fl. 11: 13. pl. 5. f. 47 (1937). Transeau 1913B, p. 86: **Clark,** Casey—pond (July). **Coles,** Charleston, Lerna—ponds (July, May). Tiffany 1928, p. 147; 1930, p. 45; 1937, p. 13.

B. VARIANS var. HAWAIENSE Nordst. Tiffany, *loc. cit.*, f. 49 (1937). Transeau: **Lawrence,** Lawrenceville—gravel pit (May). Tiffany 1928, p. 148; 1930, p. 46; 1937, p. 13; 1939, p. 91.

B. VARIANS var. SUBSIMPLEX (Wittr.) Hirn. Tiffany, *loc. cit.*, f. 48 (1937).
*Bulbochaete subsimplex* Wittr.
Transeau 1913B, p. 86: **Coles,** Ashmore—pond (May); Charleston—pond (Oct.). Johnson & Atwell 1890, p. 19, as *B. subsimplex:* **Cook,** Woodlawn—(Mar.). Transeau: **Montgomery,** Coffeen—pond (June). Tiffany 1928, p. 147; 1930, p. 45; 1937, p. 13; 1939, p. 91.

## OEDOGONIUM Link, 1820

O. ACMANDRIUM Elfv. Tiffany, *loc. cit.*, p. 48. pl. 19. f. 279 (1937). Transeau 1913B, p. 82; Collins 1918, p. 65: **Coles,** Charleston—ponds ("spring"), laboratory aquaria (Feb.). Britton: **Cook,** Northbrook—small pond and swamp along Techny Road just E. of Landwehr Road, May 12, 1938, #62. Tiffany 1930, p. 103; 1937, p. 48; 1939, p. 90.

O. ACMANDRIUM var. STICTOSPERMUM Skuja. Skuja, Acta Horti Bot. Univ. Latv. 4: 20 (1930).
Britton 1942, p. 58: **Cook,** Glenview—swamp and intermittent pond about 1½ miles W. on Central Road, May 12, 1938, #56.

O. ACROSPORUM DeBary. Tiffany, N. Am. Fl. 11: 72. pl. 26. f. 410 (1937).

*Oedogonium acrosporum* f. *connectens* Wittr.

Transeau 1913B, p. 82, as *O. a.* f. *connectens:* **Coles,** Charleston—pond (May). Tiffany 1930, p. 157; 1937, p. 72; 1939, p. 90.

O. AMERICANUM Trans. Tiffany, *loc. cit.*, p. 45. pl. 18. f. 258–260 (1937).

Collins 1918, p. 70; Tiffany 1930, p. 97; 1937, p. 45; Transeau: **Coles,** Charleston—pond (May).

O. AMPLUM Magnus & Wille. Tiffany, *loc. cit.*, p. 39. pl. 14. f. 182, 183 (1937).

*Oedogonium crassum* var. *amplum* (M. & W.) Hirn

Transeau 1913B, p. 82; 1913C, p. 34; 1916, p. 124, as *O. c.* var. *amplum:* **Clark,** Casey—pond (Sept.). **Coles,** Ashmore, Charleston—ponds (May–Nov.). **Jasper,** Bogota—creek 6 miles N.W. (Aug.); Newton—pond (Aug.). **Moultrie,** Sullivan—cut-off of Kaskaskia River (July). **Richland,** Olney—small stream (Aug.). Tiffany 1930, p. 88, as *O. c.* var. *amplum;* 1937, p. 39; 1939, p. 90.

O. ANGUSTUM (Hirn) Tiff., Tiffany, *loc. cit.*, pl. 13. f. 176–178 (1937).

*Oedogonium grande* var. *angustum* Hirn

Transeau: **Coles,** Ashmore, Charleston—ponds and small stream (May–July, Oct.). **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 86, as *O. g.* var. *angustum;* 1937, p. 39; 1939, p. 90.

O. ASTER Wittr. Tiffany, *loc. cit.*, p. 56. pl. 30. f. 486 (1937).

Transeau 1913B, p. 82: **Coles,** Charleston—ponds and pools (Apr., May). **Cumberland,** Greenup—pond and ditch (July, Nov.). **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 120; 1937, p. 56; 1939, p. 90.

O. BOHEMICUM Hirn. Tiffany, *loc. cit.*, p. 76, pl. 20. f. 305 (1937).

Transeau 1913B, p. 82: **Coles,** Charleston—ponds (May, July). Tiffany 1930, p. 128; 1937, p. 64; 1939, p. 90.

O. BORISIANUM (LeCl.) Wittr. Tiffany, *loc. cit.*, p. 64. pl. 33. f. 527 (1937).

Tiffany 1937, p. 76; 1939, p. 90.

O. BOSCII Wittr. Tiffany, *loc. cit.*, p. 41. pl. 16. f. 214, 215 (1937).

Transeau 1913B, p. 82: **Clark,** Casey—pond (May). **Coles,** Charleston—ponds (May, Oct.). Tiffany 1930, p. 91; 1937, p. 41; 1939, p. 90.

O. BRAUNII Kuetz. Tiffany, *loc. cit.*, p. 59. pl. 32. f. 505 (1937).

Transeau 1913B, p. 82: **Cumberland,** Greenup—ditch (Nov.). **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 125; 1937, p. 59; 1939, p. 90.

O. CAPILLARE (L.) Kuetz. Tiffany, *loc. cit.*, p. 35. pl. 11. f. 151, 152 (1937).

Transeau: **Coles,** Charleston—pond (May).

O. CAPILLIFORME Kuetz. Tiffany, *loc. cit.*, p. 37. pl. 12. f. 157, 158 (1937).

Transeau 1916, p. 124: **Coles,** Charleston—ponds (June, Sept., Nov.). Johnson & Atwell 1890, p. 19: **Cook,** Evanston—in "Big Ditch" (June). Tiffany 1930, p. 81; 1937, p. 37; 1939, p. 90.

O. CAPITELLATUM Wittr. Tiffany, *loc. cit.*, p. 76. pl. 20. f. 306, 307 (1937).

Tiffany 1930, p. 104; 1937, p. 76; 1939, p. 90.

O. CARDIACUM (Hass.) Wittr. Tiffany, *loc. cit.*, p. 31. pl. 9. f. 108 (1937).

Transeau 1913B, p. 82: **Clark,** Casey—pond and drain (May). **Coles,** Charleston—ponds. **Cumberland,** Greenup—pond (May). **Jasper,** Newton—pond. Tiffany 1930, p. 70; 1937, p. 31; 1939, p. 90.

O. CARDIACUM var. CARBONICUM Wittr. Tiffany, *loc. cit.*, f. 121 (1937).

Transeau 1913B, p. 82: **Clark,** Casey—pond (Apr., Nov.). **Coles,** Charleston, Lerna—ponds (Apr., May). **Douglas,** Arthur—pond (May). **Jasper,** Newton—pond (May). Tiffany 1930, p. 71; 1937, p. 31.

O. CONCATENATUM (Hass.) Wittr. Tiffany, *loc. cit.*, p. 64. pl. 34. f. 538 (1937).

Transeau 1913B, p. 82: **Coles,** Charleston—pond (May). Britton: **Cook,** Glenview—pond and swamp about 1½ miles W., May 12, 1938, #53; Niles—small pond about 1 mile N., May 10, 1938, #50. Tiffany 1930, p. 136; 1937, p. 64; 1939, p. 90.

O. CONCATENATUM var. SUPERORNATUM Tiff. Tiffany, *loc. cit.* (1937).

Britton 1942, p. 58: **Cook,** Glenview—small ponds, intermittent streams, and swamps about 1½–2 miles W., May 12, 1938, #56, 58; Northbrook—swamp on Landwehr Road about 3 miles S.W., small ponds and swamps just E. and W. of Landwehr Road at Techny Road, May 12, 1938, #60, 62, 63; Techny—pond about 2 miles S.W., May 12, 1938, #64. **Lake,** Everett—small pond about 1 mile S., May 15, 1938, #71.

O. CRASSIUSCULUM Wittr. Tiffany, *loc. cit.*, p. 66. f. 352 (1937).

Johnson & Atwell 1890, p. 19: **Cook**—"Big Woods" (Apr.).

O. CRASSIUSCULUM var. CATARACTUM (Wolle) Tiff. Tiffany, *loc. cit.*, f. 534 (1937).

Britton: **Lake,** Everett—small pond about 1 mile S., May 15, 1938, #71.

O. CRENULATOCOSTATUM Wittr. Tiffany, *loc. cit.*, p. 42. pl. 15. f. 204–206 (1937).

Transeau 1913B, p. 83: **Clark,** Casey—pond (Oct.). **Coles,** Charleston—in water and on crayfish in ponds (July, Oct.); Lerna—pond (Apr.). **Jasper,** Wheeler—pond (Aug.). Tiffany 1930, p. 92; 1937, p. 42; 1939, p. 91.

O. CRENULATOCOSTATUM var. CYLINDRICUM (Hirn) Tiff. Tiffany, *loc. cit.*, f. 207 (1937).

Transeau 1913B, p. 83: **Clark,** Casey—pond (Oct.). **Cumberland,** Greenup—ditch (Nov.). **Montgomery,** Coffeen—pond (June). **Moultrie,** Sullivan—artificial pond (July). Tiffany 1930, p. 93; 1937, p. 42.

O. CRISPUM (Hass.) Wittr. Tiffany, *loc. cit.*, p. 52. pl. 22. f. 336, 337 (1937).

Transeau 1913B, p. 83: **Coles,** Ashmore—pond (May); Charleston, Lerna—ponds (Apr.–June). Britton: **Cook,** Glenview—temporary ponds and swamps about 1½ miles W., May 12, 1938, #53, 56; Niles—small pond about 1 mile N., May 10, 1938, #50; Northbrook—small ponds and swamps at Somme Forest Preserve, May 15, 1938, May 8, 1939, #65, 67, 68, 240, 241, small ponds and swamps on Techny Road just E. and W. of Landwehr Road, May 12, 1938, June 27, 1938, #62, 63, 109; Park Ridge—gravel pit pond and swamp, May 10, 1938, #47; Techny—intermittent slough along C. & N. R. R., May 12, 1938, #61; small pond about 2 miles S.W., June 27, 1938, #108. Transeau: **Douglas,** Tuscola—pond (May). Britton: **Lake,** Everett—small pond about 1 mile S., May 15, 1938, #71. Transeau: **Lawrence,** Lawrenceville—gravel pit (Apr., May). **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 113; 1937, p. 52; 1939, p. 91.

O. CRISPUM var. GRACILESCENS Wittr. Tiffany, *loc. cit.*, p. 53. f. 338 (1937).

Transeau: **Coles,** Charleston, Dorans—pond and pools (Apr.–June). **Montgomery,** Coffeen—ponds (May). Tiffany 1930, p. 114; 1937, p. 53.

O. CROASDALEAE Jao. Tiffany, *loc. cit.*, p. 69. pl. 26. f. 416–419 (1937).

Britton 1942, p. 58: **Cook,** Glenview—small intermittent ponds and swamps about 1½ miles W., May 12, 1938, #53, 56.

O. CRYPTOPORUM Wittr. Tiffany, *loc. cit.*, p. 27. pl. 8. f. 104 (1937).

Transeau: **Coles,** Charleston—ponds. Johnson & Atwell 1890, p. 19: **Cook**—ditches (May). Tiffany 1937, p. 27; 1939, p. 91.

O. CURVUM Pringsh. Tiffany, *loc. cit.*, f. 89, 90 (1937).

Tiffany 1937, p. 29; 1939, p. 91.

O. CYATHIGERUM Wittr. Tiffany, *loc. cit.*, p. 62. pl. 35. f. 541, 542 (1937).

Transeau 1913B, p. 83: **Coles,** Charleston, Lerna—ponds (May, June). **Jasper,** Newton, Wheeler—ponds (May, Aug.). **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 133; 1937, p. 62; 1939, p. 91.

O. DECIPIENS Wittr. Tiffany, *loc. cit.*, p. 68. pl. 24. f. 383 (1937).

Transeau: **Montgomery,** Coffeen—pond (May).

O. DECIPIENS var. AFRICANUM Tiff. Tiffany, *loc. cit.*, f. 386 (1937).
Britton: **Cook,** Northbrook—small intermittent pond and swamp at Somme Forest Preserve, May 15, 1938, #66.

O. DECIPIENS var. DISSIMILE (Hirn) Tiff. Tiffany, *loc. cit.*, f. 384, 385 (1937).
Tiffany 1937, p. 68.

O. DIVERSUM (Hirn) Tiff. Tiffany, *loc. cit.*, p. 37. pl. 12. f. 166, 167 (1937).
Britton: **Lake,** Everett—small pond about 1 mile S., May 15, 1938, #71.

O. ECHINOSPERMUM A. Br. Tiffany, *loc. cit.*, p. 57. pl. 31. f. 487 (1937).
Transeau 1913B, p. 83; 1916, p. 124: **Clark,** Oilfield—ponds (Apr., May). **Coles,** Ashmore, Charleston, Lerna—ponds and ditch pools (Apr., May). Johnson & Atwell 1890, p. 19: **Cook,** Lakeside—(May). Tiffany 1930, p. 121; 1937, p. 57; 1939, p. 91.

O. EPIPHYTICUM Trans. & Tiff. Tiffany, *loc. cit.*, p. 50. pl. 21. f. 319, 320 (1937).
*Oedogonium pisanum* var. *gracilis* Trans. & Tiff.
Transeau & Tiffany 1919, p. 241, as *O. p.* var. *gracilis;* Tiffany 1930, p. 110, as *O. p.* var. *gracilis;* 1937, p. 50; 1939, p. 91: **Montgomery,** Coffeen—pond (May).

O. FLAVESCENS Wittr. Tiffany, *loc. cit.*, p. 59. pl. 32. f. 517 (1937).
Britton: **Cook,** Northbrook—small pond at Somme Forest Preserve, May 15, 1938, #65; Techny—small pond about 2 miles S.W., May 12, 1938, #60.

O. FRAGILE Wittr. Tiffany, *loc. cit.*, p. 33. pl. 10. f. 132 (1937).
Transeau: **Coles,** Charleston—pond (May). Tiffany 1930, p. 75; 1937, p. 33; 1939, p. 91.

O. FRAGILE var. ABYSSINICUM Hirn. Tiffany, Oedog. Monog., p. 75 (1930).
Britton 1942, p. 58: **Cook,** Glenview—temporary pond in swamp about 1½ miles W., May 12, 1938, #56; Northbrook—small pond in Somme Forest Preserve, May 15, 1938, #68; small pond and swamp on Techny Road just E. of Landwehr Road, May 12, 1938, #62; Techny—swamp about 2 miles S.W., May 12, 1938, #60.

O. FRANKLINIANUM Wittr. Tiffany, N. Am. Fl. 11: 31. pl. 8. f. 84 (1937).
Transeau 1913B, p. 83: **Coles,** Charleston—ponds (June, July, Oct.). **Cumberland,** Greenup—pond (July). Tiffany 1930, p. 71; 1937, p. 31; 1939, p. 91.

O. GLOBOSUM Nordst. Tiffany, *loc. cit.*, p. 32. pl. 9. f. 120 (1937).
Transeau 1913B, p. 83: **Coles,** Charleston, Lerna—ponds (Oct., May). **Jasper,** Newton—pond (May). Tiffany 1930, p. 74; 1937, p. 32; 1939, p. 91.

O. GRACILIUS (Wittr.) Tiff. Tiffany, *loc. cit.*, p. 36. pl. 11. f. 143, 144 (1937).

*Oedogonium plagiostomum* var. *gracilius* Wittr.

Transeau 1913B, p. 84, as *O. p.* var. *gracilius:* **Coles,** Charleston—ponds (Apr.–June). **Jasper,** Newton—pond (May). **Moultrie,** Sullivan—cut-off of Kaskaskia River (July). Tiffany 1930, p. 81, as *O. p.* var. *gracilius;* 1937, p. 36; 1939, p. 91.

O. GRACILLIMUM Wittr. & Lund. Tiffany, *loc. cit.*, p. 54. pl. 22. f. 353 (1937).

Transeau 1913B, p. 83: **Coles,** Ashmore, Charleston, Dorans, Lerna—ponds and pools (Apr.–June), laboratory aquaria (Feb., Mar.). **Montgomery,** Coffeen—Mill Pond (May). Tiffany 1930, p. 116; 1937, p. 54; 1939, p. 91.

O. GRANDE Kuetz. Tiffany, *loc. cit.*, p. 38. pl. 13. f. 172–174 (1937).

Transeau 1913B, p. 83; 1913C, p. 34: **Clark,** Casey—pond (Nov.). **Coles,** Ashmore—Polecat Creek, ponds and pools (May–July, Oct.); Charleston—Kickapoo Creek and other small streams, ponds, ditches (all months); Humboldt, Lerna, Loxa—creeks and ponds (May–July). Ohashi 1930, p. 177: **Cook,** Chicago—pond in Palos Park. Transeau: **Cumberland,** Greenup—pond and ditch (Apr., Nov.). **Effingham,** Effingham—roadside pool (May). **Jasper,** Bogota—creek (Aug.); Newton—pond (May, Aug.); Wheeler—pond (Sept.). **Lawrence,** Lawrenceville—small pond 4 miles N.E., and gravel pit (Apr., Aug.); Pinkstaff—Bee Branch Creek (Nov.). **Montgomery,** Coffeen—ponds (May). **Moultrie,** Sullivan—artificial pond (July). Tiffany 1930, p. 85; 1937, p. 38; 1939, p. 91.

O. GRANDE var. AEQUATORIALE Wittr. Tiffany, *loc. cit.*, f. 175 (1937).

Transeau: **Cumberland,** Greenup—pond (May).

O. HOWARDII G. West. Tiffany, *loc. cit.*, p. 49. pl. 20. f. 290, 291 (1937).

*Oedogonium howardii* var. *minus* Tiffany

Tiffany 1927, p. 204; 1930, p. 102, as *O. h.* var. *minus;* 1937, p. 49; 1939, p. 91: **Lawrence.** Transeau: **Moultrie,** Sullivan—cut-off of Kaskaskia River (July).

O. HYSTRICINUM Trans. & Tiff. Tiffany, *loc. cit.*, p. 56. pl. 30. f. 481, 482 (1937).

Transeau & Tiffany 1919, p. 240; Tiffany 1930, p. 120; 1937, p. 56; 1939, p. 91: **Coles,** Charleston—temporary pond (May). Britton: **Cook,** Techny—small pond about 1½ miles S.W., May 12, 1938, #64.

O. IDIOANDROSPORUM (Nordst. & Wittr.) Tiff. Tiffany, *loc. cit.*, p. 66. pl. 33. f. 523, 524 (1937).

*Oedogonium crassiusculum* var. *idioandrosporum* Nordst. & Wittr.

Transeau 1913B, p. 82, as *O. c.* var. *idioandrosporum:* **Clark,** Casey—pond (Oct.). **Coles,** Charleston, Lerna—ponds (May,

June). Britton: **Cook,** Northbrook—small pond at Somme Forest Preserve, May 8, 1939, #247. Transeau: **Jasper,** Newton—pond. **Lawrence,** Lawrenceville—gravel pit (Apr.). Tiffany 1930, p. 130, as *O. c.* var. *idioandrosporum;* 1937, p. 66; 1939, p. 91.

O. ILLINOISENSE Trans. Tiffany, *loc. cit.*, p. 58. pl. 31. f. 494–496 (1937).

Transeau 1914, p. 299: **Coles,** Lerna—pond (May). **Montgomery,** Coffeen—(May). Collins 1918, p. 67. Tiffany 1930, p. 123; 1937, p. 58; 1939, p. 91.

O. INTERMEDIUM Wittr. Tiffany, *loc. cit.*, p. 32. pl. 9. f. 119 (1937).

Transeau 1913B, p. 83: **Coles,** Ashmore, Charleston, Lerna—ponds and pools (Apr.–July). **Jasper,** Wheeler—pond (Aug.). Collins 1918, p. 64. Tiffany 1930, p. 72; 1937, p. 32; 1939, p. 91.

O. IRREGULARE Wittr. Tiffany, *loc. cit.*, p. 65. pl. 33. f. 521 (1937).

Transeau 1913B, p. 84: **Coles,** Charleston—pond (Sept.). Tiffany 1930, p. 131; 1937, p. 65; 1939, p. 91.

O. KIRCHNERI Wittr. Tiffany, Oedog. Monog., p. 116. pl. 38. f. 371 (1930).

Britton 1942, p. 59: **Cook,** Northbrook—pond and swamp at Somme Forest Preserve, May 15, 1938, #66; Techny—small pond along Techny Road just W. of Landwehr Road, May 12, 1938, #63.

O. LAEVE Wittr. Tiffany, N. Am. Fl. 11: 28. pl. 8. f. 99 (1937).

Transeau: **Coles,** Charleston—pool (Apr.). Tiffany 1930, p. 65; 1937, p. 28; 1939, p. 91.

O. LEMMERMANII Tiff. Tiffany, *loc. cit.*, p. 31. pl. 9. f. 113 (1937).

Transeau: **Douglas,** Arthur—pond (May).

O. LONGIARTICULATUM (Hansg.) Tiff. Tiffany, *loc. cit.*, p. 42. pl. 16. f. 226, 227 (1937).

Transeau: **Moultrie,** Sullivan—artificial pond (July).

O. LONGICOLLE Nordst. Tiff. Tiffany, *loc. cit.*, p. 67. pl. 24. f. 388, 389 (1937).

Transeau: **Moultrie,** Sullivan—artificial pond (July).

O. MACRANDRIUM Wittr. Tiffany, *loc. cit.*, p. 70. pl. 25. f. 396 (1937).

Transeau 1916, p. 124: **Coles,** Ashmore—pond (Nov.).

O. MACRANDRIUM var. AEMULANS Hirn. Tiffany, *loc. cit.*, p. 71. f. 397 (1937).

Transeau 1913B, p. 84: **Coles,** Ashmore, Charleston—ponds (Oct.). Britton: **Cook,** Glenview—swamp and small pond about 1½ miles W., May 12, 1938, #58. Transeau: **Jasper,** Wheeler—pond (Sept.). **Montgomery,** Coffeen—pond (May).

O. MACRANDRIUM var. PROPINQUUM (Wittr.) Hirn. Tiffany, *loc. cit.*, f. 401 (1937).

*Oedogonium propinquum* Wittr.

Transeau 1913B, p. 85; Collins 1918, p. 68, as *O. propinquum*: **Coles,** Ashmore, Charleston—ponds (May, Oct.). Tiffany 1930, p. 152; 1937, p. 71; 1939, p. 91.

O. MACROSPERMUM W. & G. S. West. Tiffany, *loc. cit.*, p. 68. pl. 24. f. 391, 392 (1937).

Britton: **Cook,** Northbrook—pond and swamp in Somme Forest Preserve, May 15, 1938, #66.

O. MAGNUSII Wittr. Tiffany, *loc. cit.*, p. 28. pl. 8. f. 86 (1937).

Transeau 1913B, p. 84: **Coles,** Ashmore, Charleston, Dorans—ponds and pools (Apr., May). Tiffany 1930, p. 68; 1937, p. 28; 1939, p. 91.

O. MAJUS (Hansg.) Tiff. Tiffany, *loc. cit.*, p. 38. pl. 13. f. 170, 171 (1937).

*Oedogonium grande* var. *majus* Hansg.; *O. grande* f. *robustum* Hirn Transeau: **Coles,** Charleston—ponds (June). **Moultrie,** Sullivan—artificial pond (Aug.). Collins 1918, p. 63, as *O. g.* f. *robustum;* Tiffany 1930, p. 86, as *O. g.* var. *majus;* 1937, p. 38; 1939, p. 91.

O. MITRATUM Hirn. Tiffany, *loc. cit.*, p. 49. pl. 19. f. 270, 271 (1937).

Transeau: **Coles,** Charleston—small stream (July). Tiffany 1930, p. 105; 1937, p. 49; 1939, p. 91.

O. MONILE Berk. & Harv. Tiffany, *loc. cit.*, p. 69. pl. 25. f. 393, 394 (1937).

Transeau: **Coles,** Lerna—pond (Apr.).

O. MULTISPORUM H. C. Wood. Tiffany, *loc. cit.*, p. 65. pl. 33. f. 519, 520 (1937).

Collins 1912, p. 86; Transeau 1913B, p. 84; 1916, p. 124: **Clark,** Casey—pond (May). **Coles,** Ashmore, Charleston, Wrightsville—ponds and small streams (Apr.–Nov.). **Cumberland,** Greenup—pond (Apr.). **Douglas,** Tuscola—pond (May). **Effingham,** Effingham—pond (Dec.). **Montgomery,** Coffeen—pond (May). **Moultrie,** Sullivan—cut-off of Kaskaskia River (July). Tiffany 1930, p. 131; 1937, p. 65; 1939, p. 91.

O. OBLONGELLUM Kirch. Tiffany, *loc. cit.*, p. 54. pl. 22. f. 347 (1937).

Britton: **Cook,** Park Ridge—small shallow pond at Park Ridge Country Club, May 10, 1938, #46. Transeau: **Douglas,** Arcola—pond (July). Britton: **Kankakee,** Kankakee—slough along R. 49 about 5 miles N., Apr. 18, 1938, #5. Tiffany 1930, p. 116; 1937, p. 54; 1939, p. 91.

O. OBLONGUM Wittr. Tiffany, *loc. cit.*, f. 343 (1937).

Transeau 1913B, p. 84; Collins 1918, p. 66: **Coles,** Charleston—pool (Oct.); Lerna—pond (Apr.). Tiffany 1930, p. 117; 1937, p. 54; 1939, p. 91.

O. OBLONGUM var. MAJUS Nordst. Tiffany, *loc. cit.*, f. 344 (1937).
Transeau: **Coles,** Dorans, Lerna—(Apr., May).

O. OBOVIFORME Wittr. Tiffany, *loc. cit.*, p. 38. pl. 13. f. 168, 169 (1937).
Transeau: **Coles,** Lerna—pond (Apr.).

O. OBSOLETUM Wittr. Tiffany, *loc. cit.*, p. 30. pl. 9. f. 117 (1937).
Johnson & Atwell 1890, p. 19: **Cook,** Evanston—"Big Woods" (Apr.).

O. OBTRUNCATUM Wittr. Tiffany, *loc. cit.*, p. 27. pl. 25. f. 408 (1937).
Transeau 1913B, p. 84; 1913C, p. 34; 1916, p. 124: **Coles,** Charleston—pond (Oct.). Tiffany 1930, p. 155; 1937, p. 72; 1939, p. 91.

O. OCCIDENTALE (Hirn) Tiff. Tiffany, *loc. cit.*, p. 41. pl. 16. f. 211–213 (1937).
Transeau: **Clark,** Casey—pond (Apr., May). **Coles,** Lerna—pond (May).

O. OUCHITANUM Taft. Tiffany, *loc. cit.*, p. 76. pl. 20. f. 303, 304 (1937).
Tiffany 1939, p. 91.

O. PALUDOSUM (Hass.) Wittr. Tiffany, *loc. cit.*, p. 41. pl. 15. f. 208 (1937).
Transeau 1913B, p. 84: **Clay**—pond (May). **Coles,** Lerna—ponds (Apr., May). Tiffany 1930, p. 90; 1937, p. 41; 1939, p. 91.

O. PALUDOSUM var. PARVISPORUM Hirn. Tiffany, *loc. cit.*, f. 209 (1937).
Transeau 1913B, p. 84; Collins 1918, p. 63: **Coles,** Charleston, Dorans—ponds, pools and ditches (Apr., May, Nov.). Britton: **Cook,** Glenview—swamp and small pond about 1½ miles W., May 12, 1938, #58; Northbrook—small pond at Somme Forest Preserve, May 15, 1938, #68. Transeau: **Douglas,** Arthur—pool and pond (May). **Lawrence,** Lawrenceville—gravel pit (Apr.). **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 90; 1937, p. 41.

O. PAUCOCOSTATUM Trans. Tiffany, *loc. cit.*, p. 46. pl. 19. f. 263, 264 (1937).
Transeau 1914, p. 300; Collins 1918, p. 66: **Clark,** Casey—pond (July). **Coles,** Charleston—pond (Sept., Oct.). Tiffany 1930, p. 98; 1937, p. 46; 1939, p. 91.

O. PAULENSE Nordst. & Hirn. Tiffany, *loc. cit.*, p. 40. pl. 15. f. 197, 198 (1937).
Britton: **Cook,** Northbrook—ponds and swamp at Somme Forest Preserve, May 15, 1938, #65, 66.

O. PERFECTUM (Hirn) Tiff. Tiffany, *loc. cit.*, p. 62. pl. 35. f. 547, 548 (1937).
Transeau: **Coles,** Charleston—pond (Mar.).

O. PISANUM Wittr. Tiffany, *loc. cit.*, p. 50. pl. 21. f. 323, 324 (1937).
Transeau: **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 109; 1937, p. 50; 1939, p. 91.

O. PLAGIOSTOMUM Wittr. Tiffany, *loc. cit.*, p. 36. pl. 11. f. 141, 142 (1937).

Transeau 1913B, p. 84: **Coles,** Charleston—ponds (Oct.). Tiffany 1930, p. 80; 1937, p. 36; 1939, p. 91.

O. PLUSIOSPORUM Wittr. Tiffany, *loc. cit.*, p. 30. pl. 8. f. 97, 98 (1937). Transeau: **Coles,** Ashmore—ponds (Apr.).

O. PRATENSE Trans. Tiffany, *loc. cit.*, p. 49. pl. 21. f. 325, 326 (1937). Transeau 1914, p. 297; Collins 1918, p. 66: **Clark,** Casey—pond (July). **Coles,** Charleston, Lerna—ponds and pools (Mar.–May, Nov.). Britton: **Cook,** Northbrook—small pond at Somme Forest Preserve, May 15, 1938, #68. Tiffany 1930, p. 102; 1937, p. 49; 1939, p. 91.

O. PRATICOLUM Trans. Tiffany, *loc. cit.*, p. 81. pl. 29. f. 461–463 (1937). Transeau 1914, p. 298; 1916, p. 124; Collins 1918, p. 68: **Clark,** Casey—ponds (July). **Coles,** Charleston—ponds (June–Nov.). Tiffany 1930, p. 156; 1937, p. 81; 1939, p. 91.

O. PRINGSHEIMII Cram. Tiffany, *loc. cit.*, p. 50. pl. 21. f. 312, 313 (1937).

Transeau: **Coles,** Charleston—pond and pool (May, June, Oct.).

O. PRINGSHEIMII var. NORDSTEDTII (Wittr.) Wittr. Tiffany, *loc. cit.*, f. 314–317 (1937).

Transeau 1913B, p. 85: **Clark,** Casey—pond (Nov.). **Coles,** Charleston—ponds, pools and small streams (May, July, Oct.). **Douglas,** Arthur—pond (Aug.). Tiffany 1930, p. 108; 1937, p. 50.

O. PSEUDO-BOSCII Hirn. Tiffany, *loc. cit.*, p. 33. pl. 10. f. 130 (1937). Transeau 1913B, p. 85: **Coles,** Charleston—prairie ponds and pools (Apr., May). Tiffany 1930, p. 76; 1937, p. 33; 1939, p. 91.

O. PUNCTATOSTRIATUM DeBary. Tiffany, *loc. cit.*, p. 27. pl. 23. f. 364, 365 (1937).

Transeau: **Coles,** Charleston—lake (Aug.). Tiffany 1930, p. 104; 1937, p. 29; 1939, p. 91.

O. PUNCTATUM Wittr. Tiffany, *loc. cit.*, p. 44. pl. 17. f. 244, 245 (1937). Transeau: **Clark,** Casey—pond (Oct.). **Jasper,** Wheeler—pond (Aug.).

O. PUNGENS Hirn. Tiffany, *loc. cit.*, p. 57. pl. 30. f. 483, 484 (1937). Transeau 1913B, p. 85: **Coles,** Charleston, Lerna—ponds (May). Tiffany 1930, p. 122; 1937, p. 57; 1939, p. 91.

O. PUSILLUM Kirch. Tiffany, *loc. cit.*, p. 82. pl. 19. f. 287 (1937). Collins 1912, p. 88; Transeau 1913B, p. 85: **Coles,** Charleston—ponds (May–July). **Cumberland,** Greenup—5 miles N. in Embarrass River (Sept.). Tiffany 1930, p. 161; 1937, p. 82; 1939, p. 91.

O. RIVULARE A. Br. Tiffany, *loc. cit.*, p. 37. pl. 11. f. 139, 140 (1937). Transeau: **Coles,** Ashmore—pond (Apr.).

O. ROTHII Pringsh. Tiffany, *loc. cit.*, p. 67. pl. 24. f. 380 (1937).
Britton: **Kankakee,** Kankakee—5 miles N. in slough along Route 49, Apr. 18, 1938, #5.

O. RUFESCENS Wittr. Tiffany, *loc. cit.*, p. 28. pl. 8. f. 100–102 (1937).
Transeau 1913B, p. 85; 1913C, p. 33; 1916, p. 124: **Clark,** Casey, Oilfield—ponds (Apr., May). **Coles,** Ashmore, Charleston, Lerna—ponds, pools, ditches and small streams (Mar.–May, Nov.). **Douglas,** Arthur—pond and pool (May). **Effingham,** Effingham—pond (Dec.). Tiffany 1930, p. 66; 1937, p. 28.

O. RUFESCENS var. EXIGUUM (Elfv.) Tiff. Tiffany, *loc. cit.*, f. 105 (1937).
Transeau 1913B, p. 85; Collins 1918, p. 62: **Coles,** Ashmore, Charleston—ponds and pools (Apr., May). **Lawrence,** Lawrenceville—gravel pit (Apr.). Tiffany 1930, p. 66; 1937, p. 28; 1939, p. 91.

O. RUFESCENS var. LUNDELLII (Wittr.) Tiff. Tiffany, *loc. cit.*, f. 106, 107 (1937).
Transeau: **Coles,** Ashmore, Charleston—ponds (Apr., May).

O. RUGULOSUM Nordst. Tiffany, *loc. cit.*, p. 68, pl. 24. f. 376, 377 (1937).
Transeau: **Coles,** Ashmore—ponds and pools (May, June). Tiffany 1937, p. 68; 1939, p. 91.

O. RUGULOSUM var. MINUTUM (Hansg.) Tiff. Tiffany, *loc. cit.*, p. 69. pl. 24. f. 378 (1937).
Transeau 1913B, p. 85: **Coles,** Ashmore—pond (May, Oct.). **Moultrie,** Sullivan—artificial pond (July). Tiffany 1930, p. 149; 1937, p. 69.

O. SIMPLEX Hirn. Tiffany, Oedog. Monog., p. 111. pl. 26. f. 340 (1930).
Transeau: **Jasper,** Wheeler—pond (Sept.).

O. SOCIALE Wittr. Tiffany, N. Am. Fl. 11: 28. pl. 8. f. 95, 96 (1937).
Collins 1912, p. 84; Transeau 1913B, p. 85: **Clark,** Casey—ponds (Apr., May). **Coles,** Charleston, Wrightsville—ponds, pools, and creek (Apr., May). **Cumberland,** Jewett—pond (May). Tiffany 1930, p. 67; 1937, p. 28; 1939, p. 91.

O. SUBPLENUM Tiff. Tiffany, *loc. cit.*, p. 77. pl. 27. f. 428, 429 (1937).
*Oedogonium areschoughii* var. *americanum* Tiffany
Tiffany 1927, p. 205; 1930, p. 140, as *O. a.* var. *americanum;* 1937, p. 77; 1939, p. 91: **Jackson,** DeSoto—small lake (May).

O. SUECICUM Wittr. Tiffany, *loc. cit.*, p. 29. pl. 8. f. 93 (1937).
Transeau 1913B, p. 85; 1916, p. 124: **Clark,** Casey—pond (May). **Coles,** Charleston, Lerna—ponds (May, June). **Lawrence,** Lawrenceville—gravel pit (Apr.). Tiffany 1930, p. 68; 1937, p. 29; 1939, p. 91.

O. TAPHROSPORUM Nordst. & Hirn. Tiffany, *loc. cit.*, p. 45. pl. 17. f. 235, 236 (1937).

Transeau 1913B, p. 86: **Clark,** Casey—pond (July). **Coles,** Charleston—pond (July). Tiffany 1930, p. 97; 1937, p. 45; 1939, p. 91.

O. TENTORIALE Nordst. & Hirn. Tiffany, *loc. cit.*, p. 73. pl. 26. f. 415 (1937).

Transeau 1913B, p. 86; Collins 1918, p. 68: **Coles,** Charleston—ponds (Oct.). Tiffany 1930, p. 157; 1937, p. 73; 1939, p. 91.

O. UNDULATUM (Breb.) A. Br. Tiffany, *loc. cit.*, p. 73. pl. 24. f. 373 (1937).

Transeau: **Coles,** Charleston—lake (Aug.). Johnson & Atwell 1890, p. 19: **Cook,** Lakeside—(May).

O. UPSALIENSE Wittr. Tiffany, *loc. cit.*, p. 34. pl. 10. f. 133 (1937).

Transeau: **Coles,** Lerna—pond (Apr.). Britton: **Cook,** Northbrook—small pond along Techny Road just W. of Landwehr Road, May 12, 1938, #63. Tiffany 1930, p. 77; 1937, p. 34; 1939, p. 91.

O. VARIANS Wittr. & Lund. Tiffany, loc. cit., p. 30. pl. 9. f. 114 (1937).

Transeau 1916, p. 124: **Coles,** Charleston—pond (June, July). Britton: **Cook,** Niles—small pond about 1 mile N., May 10, 1938, #50; Northbrook—small pond along Techny Road just W. of Landwehr Road, May 12, 1938, #63; Palos Park—swamp, July 13, 1939, #545. Tiffany 1930, p. 69; 1937, p. 30; 1939, p. 91.

O. VAUCHERII A. Br. Tiffany, *loc. cit.*, p. 33. pl. 10. f. 124, 125 (1937).

Transeau 1913B, p. 86; 1913C, p. 33; 1916, p. 124: **Coles,** Ashmore, Charleston—ponds and pools and small streams (June–Nov., Feb.). Britton: **Cook,** Glenview—swamp and temporary pond about 1½ miles W., May 12, June 23, 1938, #53, 99. **Lake,** Everett—small pond about 1 mile S., May 15, 1938, #71. Transeau: **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 76; 1937, p. 33; 1939, p. 91.

O. VULGARE (Wittr.) Tiff. Tiffany, *loc. cit.*, p. 27. pl. 8. f. 103 (1937). *Oedogonium cryptoporum* var. *vulgare* Wittr.

Transeau 1913B, p. 83, as *O. c.* var. *vulgare:* **Clark,** Casey—ponds (Apr., May). **Coles,** Ashmore, Lerna—ponds (Apr., May). **Montgomery,** Coffeen—pond (May). Tiffany 1930, p. 66, as *O. c.* var. *vulgare;* 1937, p. 27; 1939, p. 91.

O. WELWITSCHII W. & G. S. West. Tiffany, *loc. cit.*, p. 15. pl. 21. f. 334, 335 (1937).

Transeau: **Coles,** Charleston—small stream (July). Tiffany 1930, p. 106; 1937, p. 51; 1939, p. 91.

O. WOLLEANUM Wittr. Tiffany, *loc. cit.*, p. 62. pl. 36. f. 449, 450 (1937).

Transeau 1913B, p. 86: **Clark,** Casey—pond (May). **Coles,**

Charleston, Lerna—ponds (Apr., May). Tiffany 1930, p. 135; 1937, p. 62; 1939, p. 91.

Order: ULVALES
Family: SCHIZOMERIDACEAE

SCHIZOMERIS Kuetzing, 1843

S. LEIBLEINII Kuetz. Tiffany, Amer. Midl. Nat. 18:932. pl. 1. f. 15, 16 (1937).

Transeau 1913B, p. 81; 1913C, p. 33: **Coles,** Charleston—ponds, Kickapoo Creek and other small streams (June–Oct.). Britton: **Cook,** Palos Park—swamp, Sept. 8, 1941, #975; Sag Bridge—swamp, Sept. 8, 1941, #988. Transeau: **Cumberland,** Greenup—pond (July). **Effingham,** Effingham—small stream (Nov.). Forbes & Richardson 1913, p. 502: **Will,** Lockport—Sanitary Canal.

Order: CHLOROCOCCALES
Family: CHLOROCOCCACEAE

CHLOROCOCCUM Fries, 1820

C. HUMICOLA (Naeg.) Rab. Smith, Freshw. Alg. U. S., p. 468. f. 311 (1933).

Transeau: **Coles,** Charleston—laboratory aquarium (Apr.).

GOLENKINIA Chodat, 1894

G. RADIATA Chod. Tiffany, Contrib. Franz T. Stone Lab. 6: 47. pl. 7. f. 113 (1934).

Britton: **Cook,** Evanston—E. pond at Memorial Park Cemetery, June 27, 1938, #104. Kofoid 1908, pp. 25, 315: **Mason,** Havana—Illinois River (Apr.–Dec.).

Family: ENDOSPHAERACEAE

CHLOROCHYTRIUM Cohn, 1872

C. KNYANUM Cohn & Szym. Collins, Tufts Col. Stud. 2(3): 147 (1909).

Transeau 1913B, p. 79: **Coles,** Lerna—in leaves and stems of *Radicula aquatica* in ponds (May).

KENTROSPHAERA Borzi, 1883

K. FACCIOLAAE Borzi. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5: 67. f. 5 (1915).

Transeau: **Coles,** Lerna—pond (Apr.).

## Family: CHARACIACEAE

### CHARACIUM A. Braun, 1849

C. AMBIGUUM Herm. Tiffany, Contrib. Franz T. Stone Lab. 6: 48. pl. 7. f. 116 (1934).

Johnson & Atwell 1890, p. 19: **Cook,** Evanston—in "Big Ditch" (Nov.).

C. NAEGELII A. Br. Tiffany, *loc. cit.*, f. 121 (1934).

Johnson & Atwell 1890, p. 19: **Cook**—"Big Woods" (Apr.).

C. PRINGSHEIMII A. Br. Collins, Tufts Coll. Stud. 2(3): 151 (1909).

Transeau: **Coles,** Charleston—pond and small stream (Dec.–Mar.).

## Family: HYDRODICTYACEAE

### HYDRODICTYON Roth, 1800

H. RETICULATUM (L.) Lag. Tiffany, Contrib. Franz T. Stone Lab. 6: 52. pl. 8. f. 130 (1934); DeToni, Sylloge Algarum 1(2): 562 (1889).

*Hydrodictyon utriculatum* Roth

Johnson & Atwell 1890, p. 19, as *H. utriculatum;* Britton: **Cook,** Argonne Forest Preserve—Tuma Lake, July 14, 1939, #553, 554; Palos Park—small shallow pond, July 13, 1939, #535; Rose Hill (May). **Edgar,** Paris—reservoir (July). **Jasper,** Newton—small stream and pond (May, Aug., Sept.). **Lawrence,** Pinkstaff—Bee Branch Creek and other small streams and ponds (June–Nov.). **McHenry,** McHenry—swamp at N.E. side of McCullon Lake, July 6, 1939, #387.

### PEDIASTRUM Meyen, 1829

P. ANGULOSUM (Ehr.) Menegh. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 99 (1915).

Transeau 1913B, p. 81: **Coles,** Charleston—pond (July).

P. BORYANUM (Turp.) Menegh. Tiffany, Contrib. Franz T. Stone Lab. 6: 49. pl. 8. f. 146, 147 (1934); DeToni, Sylloge Algarum 1(2): 576 (1889).

*Micrasterias boryana* Ehr.; *M. elliptica* Ehr.; *M. tricyclia* Ehr.

Bailey 1845, p. 34, as *M. boryana*, *M. elliptica* and *M. tricyclia* (St. Clair). Johnson & Atwell 1890, p. 19; Jelliffe 1893, p. 311 (Cook). Kofoid 1908, pp. 26, 292, 315 (Mason). Collins 1909, p. 177; Transeau 1913B, p. 81; 1916, p. 125 (Clark, Coles, Douglas). Eddy 1927B, pp. 208, 223 (Cook). Purdy 1930, pp. 63, 68, 72 (Will). Britton 1940, p. 71 (Cook). Britton (Lake, McHenry).

**Clark,** Casey—pond (May). **Coles,** Charleston, Dorans—ponds and pools (Jan.–July, Oct., Dec.), laboratory aquaria (Mar., Dec.). **Cook,** Argonne Forest Preserve—Maple Lake, Sept. 8, 1939, #986; Chicago—Lake Michigan (July, Aug., Nov.);

Evanston—aquarium (Mar.), small pond in Calvary Cemetery, June 23, 1938, #74, city water reservoir, June 27, 1938, #106; Morton Grove—small pond about 1 mile N.W., Oct. 3, 1938, #217, 218; Northbrook—small pond on Pfingsten Road about 1¼ miles S. of Techny Road, May 12, 1938, #64, small ponds in Somme Forest Preserve, May 15, June 23, 1938, #65, 67, 115; Sag Bridge—old quarry pond, Sept. 8, 1939, #1007, small ponds and swamp, Sept. 8, 1939, #1015, 1021; Schnells Corner—pond in Elk Grove Forest Preserve, Aug. 8, 1939, #780. **Douglas,** Arthur—pond (May). **Lake,** Antioch—channel between Grass Lake and Lake Marie, Lake Marie, and Channel Lake, Sept. 14, 1939, #1028, 1029, 1032, 1035; Fox Lake—Fox and Nippersink Lakes, July 25, 1939, #594, 599, 602, 604, Aug. 25, 1939, #951, 953; Highwood—small pond, May 15, 1938, #73; Klondike—Grass Lake, Fox Lake, Petite Lake, and connecting channels, Aug. 25, 1939, #942, 945, 948, 958, 969, 971; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #913, 915; Libertyville—DesPlaines River at Route 59A, July 29, 1938, #181. Volo—Fish Lake, Aug. 24, 1939, #935; Wauconda—Bangs and Slocum Lakes, Aug. 24, 1939, #920, 925–927; Waukegan—Dead River in Dunes Park, May 11, 1939, #255, ditch, July 29, 1938, #173. **Mason,** Havana—Illinois River (all months). **McHenry,** Greenwood—Nippersink Creek at Thayer School and below Wonder Lake Dam, July 6, 7, 1939, #366, 432; McHenry—swamp on N.E. side of McCullom Lake, July 6, 1939, #380; Richmond—Twin Lakes (S. end of Lake Elizabeth), Aug. 2, 1939, #725, 729; Woodstock—swamp about 2 miles S.W., July 7, 1939, #402, 403. **St. Clair**—Mississippi River. **Will,** Lockport—Chicago Drainage Canal and DesPlaines River (June–Oct.).

P. BORYANUM var. LONGICORNE Racib. Tiffany, *loc. cit.*, f. 148 (1934). Britton: **Cook,** Northbrook—small pond in Somme Forest Preserve, May 15, 1938, #67.

P. DUPLEX Meyen. Tiffany, *loc. cit.*, p. 50. f. 140 (1934); DeToni, Sylloge Algarum 1(2): 578 (1889).

*Pediastrum pertusum* Kuetz.

Jelliffe 1893, p. 311, as *P. pertusum* (Cook). Kofoid 1908, pp. 26–28, 32, 292, 315, as *P. pertusum* (Mason). Collins 1909, p. 179; Transeau 1913B, p. 81 (Coles, Montgomery, Moultrie). Galtsoff 1924, pp. 399, 401, 402, 404, 405, 410 (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy 1927A, p. 128 (Champaign). Purdy 1930, p. 72, as *P. pertusum* (Will). Eddy 1931A, pp. 480, 483, 486 (Cass, Macon, Menard, Sangamon); 1931B, p. 461 (Pulaski); 1934, pp. 385, 386, 388–392, 394, 395, 399–403 (Adams, Alexander, Champaign, Cal-

houn, Hancock, Henry, Jackson, Jersey, Lake, Macon, Mason, Madison, Massac, McHenry, Monroe, Ogle, Piatt, Pike, Pulaski, Randolph, St. Clair, Union, Wabash, Whiteside). Britton 1940, p. 71 (Cook). Britton (Lake, McHenry).

**Adams**—Mississippi River (June). **Alexander**—Mississippi and Ohio Rivers (June), Horseshow Lake (June–Aug.). **Calhoun**—Mississippi River (June). **Carroll**—Mississippi River (July, Sept.). **Cass,** Chandlerville—Sangamon River (July, Sept.). **Champaign,** Urbana—in lake at Crystal Lake Park (Apr.–Oct.). **Coles,** Charleston—ponds (May). **Cook,** Argonne Forest Preserve—swamp at 95th St. and 104th Ave., pond on Palos Golf Course, shallow pond at 95th St. and 100th Ave., July 13, 1937, #488, 504, 533, 534, Tuma Lake, July 14, 1939, #551, 555, shallow pond at 95th St. and 100th Ave., Sept. 8, 1939, #978, 979; Chicago—Lake Michigan; Evanston—small pond at Memorial Park Cemetery, June 27, 1938, #104; Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43; Northbrook—small ponds in Somme Forest Preserve, May 15, 1938, #65, June 27, 1938, #112, July 3, 1939, #360; Orland Park—small pond and extensive swamp W. of Wolf Road on 131st St., Sept. 8, 1939, #1021; Palos Park—Calumet Sag Channel at Kean Ave., and small ponds at Harlem Ave. and 143rd St., July 14, 1939, #559, 578, 581; Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452; Schnells Corner—small ponds in Elk Grove Forest Preserve, June 23, 1938, #91, 95, June 22, 1939 #309, 321, 324, 327; Wheeling—DesPlaines River at Dam #1 (Hintz Road) and Dam #2 (Foundry Road), Aug. 8, 1939, #777, 780. **Hancock,** Dallas City—Lake Keokuk-Mississippi River (June, July, Sept.). **Henderson**—Mississippi River (July–Aug.). **Henry,** Colona—slough (June–Aug.). **Jackson, Jersey, Jo Daviess**—Mississippi River (June–Sept.). **Lake,** Antioch—Channel Lake, Sept. 14, 1939, #1035; Fox Lake—Nippersink Creek and Nippersink Lake, July 25, 1939, #601, 602, Fox Lake, July 25, 1939, #604, 605, Aug. 25, 1939, #951, Long Lake ("summer"); Klondike—Grass Lake, Aug. 25, 1939, #943 945, 969; Grass Lake—Fox Lake channel, Aug. 25, 1939, #948, Fox Lake, Aug. 25, 1939, #950; Lake Villa—Sand Lake ("summer"); Libertyville—DesPlaines River at Route 59A, July 29, 1938, #181, Butlers Lake, July 14, 1938, #122; Wauconda—Bangs and Slocum Lakes, Aug. 24, 1939, #920, 926; Waukegan—in Dead River at Dunes Park, May 11, 1939, #255. **Macon,** Decatur—Sangamon River (Lake Decatur) (Apr.–Nov.); Harristown—Sangamon River (Sept.). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (all months). **Massac**—Ohio River

(June). **McHenry,** Algonquin—Fox River ("summer"); Greenwood—Nippersink Creek and Wonder Lake, July 6, 1939, #365, 366, 368; Johnsburg—Fox River, July 25, 1939, #590; McHenry—swamps and small stream at N.E. side of McCullom Lake, July 6, 1939, #376, 377, 380, small pond about 3 miles N.W., July 6, 1939, #390; Richmond—Twin Lakes (Lake Elizabeth), Aug. 2, 1939, #729; Woodstock—swamp about 2 miles S.E., July 7, 1939, #403. **Menard,** Petersburg—Sangamon River (June, July, Sept.). **Mercer,** New Boston—Mississippi River (July–Sept.), Edwards River (July). **Monroe**—Mississippi River (June). **Montgomery,** Coffeen—ponds (May). **Moultrie,** Sullivan—artificial pond (Aug.). **Ogle,** Byron—slough (June–Aug.); Grand Detour—slough (June–Aug.). **Piatt,** Monticello—Sangamon River (June, Aug., Nov.). **Pike**—Mississippi River (June). **Pulaski**—Mississippi and Ohio Rivers (June). **Randolph**—Mississippi River (June). **Rock Island**—Mississippi River (July–Sept.). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (June, July, Sept.). **St. Clair**—Mississippi River (June). **Union**—Mississippi River (June); Larue—Wolf Lake (June–Aug.). **Wabash,** Mt. Carmel—Wabash River. **Whiteside**—Mississippi River (June); Erie—Rock River Slough, Hatwood Slough (June–Aug.). **Will,** Lockport—DesPlaines River (June–Aug.).

P. DUPLEX var. CLATHRATUM (A. Br.) Lag. Smith, Bull. Wis. Geol. & Nat. Hist. Surv. 57(1): 171. pl. 47. f. 1–3 (1920).

Transeau 1913B, p. 81: **Coles,** Charleston—ponds (May). Britton **Cook,** Argonne Forest Preserve—Maple Lake, Sept. 8, 1939, #991. **Lake,** Fox Lake—Fox Lake, south of Indian Point, Aug. 25, 1939, #950; Fox Lake—Grass Lake channel, Aug. 25, 1939, #948; Libertyville—DesPlaines River at Route 59A, July 29, 1938, #181. **McHenry,** McHenry—Nippersink Creek below Wonder Lake dam, July 6, 1939, #365, 366. Transeau: **Montgomery,** Coffeen—ponds (May). **Moultrie,** Sullivan—artificial pond (Aug.).

P. DUPLEX var. ROTUNDATUM Lucks. Tiffany, Contrib. Franz T. Stone Lab. 6: 50. pl. 8. f. 143 (1934).

Britton: **Cook,** Northbrook—small pond in Somme Forest Preserve, June 27, 1938, #112; Sag Bridge—pond, Sept. 8, 1939, #1000. **Lake,** Fox Lake—Petite Lake, Aug. 25, 1939, #958, Lake Marie, Sept. 14, 1939, #1030; Wauconda—Slocum Lake, Aug. 24, 1939, #926.

P. INTEGRUM Naeg. Tiffany, *loc. cit.*, p. 49. f. 145 (1934).

Britton: **Cook,** Palos Park—swamp, July 14, 1939, #556.

P. SIMPLEX Meyen. Tiffany, *loc. cit.*, p. 50. f. 135–136 (1934).

Galtsoff 1924, pp. 399, 402, 404: **Carroll**—Mississippi River

(July, Sept.). Baker 1922, pp. 80, 84: **Champaign,** Urbana—Boneyard Creek and Salt Fork. Galtsoff, *loc. cit.:* **Hancock**—Mississippi River. **Henderson, Jo Daviess**—Mississippi River (July–Sept.). Britton: **Lake,** Antioch—Grass Lake-Lake Marie Channel, Sept. 14, 1939, #1028, 1029; Klondike—Grass Lake-Fox Lake Channel and Fox Lake, Aug. 25, 1939, #948, 950; Libertyville—DesPlaines River at Route 59A, July 29, 1938, #181. Eddy 1931A, pp. 483, 486: **Macon**—Lake Decatur (July). **Menard,** Petersburg—Sangamon River (Sept.). Galtsoff, *loc. cit.:* **Mercer, Rock Island, Whiteside**—Mississippi River (July–Sept.). Purdy 1930, pp. 68, 69, 72: **Will,** Lockport—DesPlaines River (June–Nov.).

P. SIMPLEX var. DUODENARIUM (Bail.) Rab. Tiffany, *loc. cit.*, f. 139 (1934).

Collins 1909, p. 177: ? **County,** Britton: **Cook,** Palos Park—Calumet Sag Channel at Kean Ave., July 14, 1939, #559; Sag Bridge—stone quarry and other small ponds, Sept. 8, 1939, #1007, 1011, 1014. **Lake,** Fox Lake—Fox, Grass, Marie, Channel, Nippersink and Petite Lakes and connecting channels, July 25, Aug. 25, Sept. 14, 1939, #602, 604, 942, 943, 945, 948, 950, 953, 958, 959, 1029, 1035; Halfday—gravel pit E. of, Aug. 8, 1939, #772; Volo—Fish Lake, Aug. 24, 1939, #935, 936; Wauconda—Bangs and Slocum Lakes, Aug. 24, 1939, #923, 926. **McHenry,** Johnsburg—Pistakee Lake, July 25, 1939, #595, Fox River at Pistakee Lake, July 25, 1939, #592; Richmond—S. end of South Twin Lake (Lake Elizabeth), Aug. 2, 1939, #729.

P. TETRAS (Ehr.) Ralfs. Tiffany, *loc. cit.*, f. 132; DeToni, Sylloge Algarum 1(2): 581 (1889).

*Pediastrum ehrenbergii* A. Br.

Collins 1909, p. 179; Transeau 1913B, p. 81: **Coles,** Charleston—ponds (June, Nov.). Johnson & Atwell 1890, p. 19, as *P. ehrenbergii;* Britton: **Cook**—"Big Ditch" (Sept.); Argonne Forest Preserve—swamp at 95th St. & 104th Ave., July 13, 1939, #488, 502, 503, Sept. 8, 1939, #984, small ponds, July 13, 1939, #515, 520, 525, 529, 533, swamps at 95th St. & 96th Ave., Kean Ave. between 87th & 95th Sts. and 131st St. W. of Wolf Road, July 13, 1939, #477, 497, 541, 543, 1018; Evanston—small pond in Calvary Cemetery, and small greenhouse reservoir, June 23, 1938, #74, 75; Glenview—swamp and temporary pond about 1½ miles W., June 23, 1938, #97; Goeselville—pond at Mascouten Forest Preserve, July 14, 1939, #578, 588; Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43; Northbrook—small ponds at Somme Forest Preserve, June 27, 1938, #112, 115, May 8, 1939, #241, 243, July 3, 1939, #350, small pond on Techny Road ½ mile W. of Landwehr Road, June 27, 1938, #110; Palos

Park—pond, July 14, 1939, #566; Schnells Corner—ponds at Elk Grove Forest Preserve, June 22, 1939, #327, Aug. 8, 1939, #790; Wheeling—DesPlaines River at Dam #2 (Foundry Road), Aug. 8, 1939, #780. Britton: **Lake,** Highland Park—small pond at Euclid Hills C. C., June 27, 1938, #118; **McHenry,** Johnsburg —Fox River, July 25, 1939, #590; McHenry—swamp E. of McCullom Lake, July 6, 1939, #374. Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (July). Purdy 1930, pp. 68, 69, 72: **Will,** Lockport—DesPlaines River (June–Nov.).

P. TETRAS var. TETRAODON (Corda) Hansg. Tiffany, *loc. cit.*, p. 51. f. 133 (1934).

Britton 1940, p. 71: **Cook,** Evanston—gravel pit at Simpson St. and Grosse Point Road, Oct. 3, 1938, #212; Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43; Palos Park—shallow ponds, July 13, 1939, #535, 540, swamp, Sept. 8, 1939, #982; Sag Bridge—swamp, Sept. 8, 1939, #984; stone quarry pond and small pond in extensive swamp, Sept. 8, 1939, #1008, 1016, 1021. Britton: **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #255; Fox Lake—Fox Lake, Aug. 25, 1939, #951, channel entering E. side of Grass Lake, Aug. 25, 1939, #971; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #916; Wauconda—Bangs Lake, Aug. 24, 1939, #925. **McHenry,** Harvard—small pond about 2 miles N.E., July 8, 1939, #436; Richmond—S. end of South Twin Lake (Lake Elizabeth), Aug. 2, 1939, #725.

## SORASTRUM Kuetzing, 1845

S. SPINULOSUM Naeg. Tiffany, *loc. cit.*, p. 51. pl. 7. f. 129 (1934).

Transeau 1913B, p. 81: **Coles,** Ashmore, Charleston, Lerna—ponds (May–July, Oct.). Britton: **Cook,** Argonne Forest Preserve—Tuma Lake, July 14, 1939, #551; Northbrook—small pond in Somme Forest Preserve, July 3, 1939, #350; Palos Park —small ponds, July 14, Sept. 8, 1939, #578, 978; Sag Bridge—ponds and swamps, July 13, 1939, #488, 493, 504, 510, 515, 526, Sept. 8, 1939, #988, 998, 1016, 1018, 1021; Schnells Corner—small ponds in Elk Grove Forest Preserve, June 23, 1938, #95, June 22, Aug. 8, 1939, #321, 322, 324, 327, 780, 790. **Lake,** Lake Zurich—in Lake Zurich, Aug. 24, 1939, #913; Volo—bog at Tamarack Farm, June 3, 1939, #294. **McHenry,** Harvard—swamps and small pond about 2 miles E., July 8, 1939, #434, 436; McHenry—swamp on E. side of McCullom Lake, July 6, 1939, #374–376, small stream draining into Defiance Lake, Aug. 24, 1939, #934.

## Family: COELASTRACEAE

## COELASTRUM Naegeli, 1849

C. CAMBRICUM Arch. Tiffany, *loc. cit.*, p. 52. pl. 8. f. 159.
Transeau 1913B, p. 80: **Coles,** Charleston—ponds (June). Daily 1938, p. 80: **Cook,** Evanston—Lake Michigan. Britton: **Lake,** Fox Lake—Grass, Fox, Marie, Bluff, and Channel Lakes and connecting channels, Aug. 25, Sept. 14, 1939, #943, 945, 953, 971, 1028, 1029, 1033, 1035, 1046, 1047; Wauconda—Slocum Lake, Aug. 24, 1939, #926. Kofoid 1908, pp. 23, 24, 315: **Mason,** Havana—Illinois River (Mar.–Nov.). Britton: **McHenry,** Richmond—S. end of South Twin Lake (Lake Elizabeth), Aug. 2, 1939, #729.

C. MICROPORUM Naeg. Tiffany, *loc. cit.*, f. 162 (1934).
Transeau 1913B, p. 80 (Coles). Eddy 1927B, p. 215 (Cook); 1931A, pp. 480, 481, 483, 486 (Cass, Macon, Menard, Sangamon); 1931B, p. 461 (Pulaski). Britton (Cook, Lake, McHenry).
**Cass,** Chandlerville—Sangamon River (June, Sept.). **Coles,** Charleston, Dorans—ponds and pools (Feb., May, July, Oct., Nov.). **Cook,** Argonne Forest Preserve—Tuma Lake, July 14, 1939, #551, 555, ponds, Sept. 8, 1939, #973, 978, Maple Lake, Sept. 8, 1939, #986, 991; Chicago—Lake Michigan (July); Goeselville—pond at Mascoutin Forest Preserve, July 14, 1939, #581, 588; Northbrook—small pond at Somme Forest Preserve, June 27, 1938, #115; Palos Park—Calumet Sag Channel at Kean Ave., July 14, 1939, #559; Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452; Sag Bridge—stone-quarry pond, Sept. 8, 1939, #1007; Schnells Corner—pond at Elk Grove Forest Preserve, Aug. 8, 1939, #785; Wheeling—DesPlaines River at Dam #2 (Foundry Road), Aug. 8, 1939, #780. **Lake,** Antioch—Grass Lake-Lake Marie Channel, Sept. 14, 1939, #1028, 1029; Fox Lake—Nippersink Lake and Nippersink Creek, July 25, 1939, #599, 601, 602, Fox Lake, Aug. 25, 1939, #966; Halfday—small pond, Aug. 8, 1939, #772; Klondike—Grass Lake and connecting channels, Aug. 25, 1939, #947, 969; Lake Forest—small pond on Green Bay Road, July 29, 1938, #180; Volo—bog at Tamarack Farm, June 3, 1939, #294, Fish Lake, Aug. 24, 1939, #935; Wauconda—Bangs and Slocum Lakes, Aug. 24, 1939, #924–927. **McHenry,** Greenwood—Wonder Lake, July 6, 1939, #368; **Macon**—Lake Decatur (June, July); McHenry—swamp E. of McCullom Lake, July 6, 1939, #374–376; Woodstock—swamp 2 miles S.E., July 7, 1939, #403. **Menard** Petersburg—Sangamon River (Sept.). **Pulaski,** Wetaug—sinkhole ponds (July, Sept.). **Sangamon,** Illiopolis, Riverton and Springfield—Sangamon River (Sept.).

C. RETICULATUM (Dang.) Senn. Tiffany, *loc. cit.*, f. 163 (1934).
Transeau: **Coles,** Charleston—pond (Nov.). Eddy 1927B, pp. 208, 223: **Cook,** Chicago—Lake Michigan (Sept.). Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (Sept.).

C. SPHAERICUM Naeg. Tiffany, *loc. cit.*, f. 160 (1934).
Britton: **Cook,** Sag Bridge—small ponds and extensive swamp, Sept. 8, 1939, #1014, 1016.

## Family: OOCYSTACEAE

### ANKISTRODESMUS Corda, 1838; Ralfs, 1848

A. FALCATUS (Corda) Ralfs. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 188. f. 283 (1915); DeToni, Sylloge Algarum 1(2): 592 (1889).
*Raphidium falcatum* (Corda) Cooke; *R. polymorphum* Fresen.; *R. polymorphum* var. *sigmoideum* Rab.
Johnson & Atwell 1890, p. 19, as *Raphidium p.* var. *sigmoideum* (Cook). Jelliffe 1893, p. 311, as *Raphidium polymorphum* (Cook). Kofoid 1908, pp. 23, 30, 292, 316, as *Raphidium polymorphum* (Mason). Transeau 1913B, p. 80, as *Raphidium falcatum* (Coles). Eddy 1927B, pp. 215, 222 (Cook); 1931A, pp. 480, 486 (Cass, Macon, Menard, Sangamon); 1931B, p. 461 (Pulaski). Britton (Cook).
**Cass,** Chandlerville—Sangamon River (Sept.). **Coles,** Charleston—pond (Nov.). **Cook,** Chicago—Lake Michigan (July); Evanston—aquarium (Mar.); Northbrook—small pond and swamp on Techny Road just E. of Landwehr Road, May 12, 1938, #62. **Macon**—Lake Decatur (June); Harristown—Sangamon River (June, Sept.). **Mason,** Havana—Illinois River (all months). **Menard,** Petersburg—Sangamon River (Sept.). **Pulaski,** Wetaug—sink-hole ponds (Sept., Dec.). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (June, Sept.).

A. LONGISSIMUS (Lemm.) Wille. Brunnthaler, *loc. cit.*, p. 191. f. 300 (1915).
*Raphidium longissimum* Schroed.
Kofoid 1908, p. 30, as *Raphidium longissimum:* **Mason,** Havana Illinois River (Aug., Oct., Dec., Feb.).

### CHLORELLA Beyerinck, 1890

C. CONDUCTRIX Brandt. Smith, Freshw. Alg. U. S., p. 492 (1933).
*Zoochlorella conductrix* Brandt.
Transeau 1913B, p. 80, as *Zoochlorella conductrix:* **Coles,** Charleston—pond (Nov.); laboratory culture—in *Paramecium bursaria, Stentor polymorphus* and *Hydra viridis* (Jan. 4, 1912, two weeks after collection from pond).

C. PARASITICA Brandt. Smith, *loc. cit.* (1933).
*Zoochlorella parasitica* Brandt.
Transeau 1913B, p. 80, as *Zoochlorella parasitica:* **Coles,** Charleston—in freshwater sponge in pond.
C. VULGARIS Beijer. Tiffany, Contrib. Franz T. Stone Lab. 6: 54. pl. 9. f. 180 (1934).
Forbes & Richardson 1913, p. 502: **Will,** Lockport"encrusting stones" in Sanitary Canal.

## CLOSTERIOPSIS Lemmermann, 1898

C. LONGISSIMA Lemm. Tiffany, *loc. cit.*, p. 53. f. 173 (1934).
Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (Sept., Dec.).

## DACTYLOCOCCUS Naegeli, 1849

D. INFUSIONUM Naeg. Smith, Freshw. Alg. U. S., p. 507. f. 384 (1933).
Kofoid 1908, p. 34: **Mason,** Havana—Illinois River.

## DICTYOSPHAERIUM Naegeli, 1849

D. EHRENBERGIANUM Naeg. Tiffany, Contrib. Franz T. Stone Lab. 6: 54. pl. 9. f. 168 (1934).
Jelliffe 1893, p. 311; Britton: **Cook,** Chicago—Lake Michigan; Sag Bridge—small ponds and swamps, July 13, 1939, #494, 529, 530; Schnells Corner—pond in Elk Grove Forest Preserve, Aug. 8, 1939, #790. Britton: **Lake,** Volo—Fish Lake, Aug. 24, 1939, #935. **McHenry,** Woodstock—swamp 2 miles S.E., July 7, 1939, #403.
D. PULCHELLUM Wood. Tiffany, *loc. cit.*, f. 167 (1934).
Eddy 1927B, pp. 208, 215, 222; Daily 1938, p. 80; Britton: **Cook,** Chicago—Lake Michigan (July, Aug.); Argonne Forest Preserve —Maple Lake, July 13, 1939, #487; Evanston—Lake Michigan; ponds in Memorial Park Cemetery, June 27, 1938, #103, 104; Glenview—swamp and temporary pond about 1½ miles W., Oct. 3, 1938, #219; Palos Park—Calumet Sag Channel at Kean Ave., July 14, 1939, #559; Sag Bridge—small ponds, July 13, 1939, #510, 530, Sept. 8, 1939, #1015, swamps, July 13, 1939, #488, 492, 494, 495, 503. Britton: **Lake,** Fox Lake—in Fox, Nippersink, Grass, Petite, Marie and Channel Lakes and connecting channels, July 25, Aug. 25, Sept. 8, 14, 1939, #602, 604, 943, 945, 948, 950, 953, 954, 958, 971, 1028, 1029, 1032, 1033, 1035; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #914; Volo—bog at Tamarack Farm, June 3, 1939, #294. **McHenry,** Johnsburg—Pistakee Lake, July 25, 1939, #592; McHenry—swamp E. of McCullom Lake, July 6, 1939, #374, 376; small pond about 1 mile N.W. of McCullom Lake, July 6, 1939, #390; Ringwood—

pond about 1 mile N.W., July 6, 1939, #398; Woodstock—swamp about 2 miles S.E., July 7, 1939, #403. Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole ponds (July, Sept.).

## DIMORPHOCOCCUS A. Braun, 1855

D. LUNATUS A. Br. Tiffany, *loc. cit.*, p. 58. f. 166 (1934).
Britton: **Cook,** Sag Bridge—small shallow pond, July 13, 1939, #510. **Lake,** Fox Lake—channel entering E. side of Grass Lake, Aug. 25, 1939, #971.

## GLOEOTAENIUM Hansgirg, 1890

G. LOITLESBERGERIANUM Hansg. Tiffany, *loc. cit.*, pl. 15. f. 366 (1934). Collins 1912, p. 95; Transeau 1912, p. 143; 1913A, p. 67; 1913B, p. 80: **Coles,** Charleston—ponds (May–Oct.). Britton: **Cook,** Sag Bridge—stone quarry pond, Sept. 8, 1939, #1008. **McHenry,** Woodstock—swamp about 2 miles S.E., and small pond about 1 mile E., July 7, 1939, #403, 425.

## KIRCHNERIELLA Schmidle, 1893

K. LUNARIS (Kirch.) Moeb. Tiffany, *loc. cit.*, p. 56. pl. 9. f. 185 (1934). Transeau 1913B, p. 80: **Clark,** Casey—pond (Nov.). **Coles,** Charleston—pond (May). Britton: **Lake,** Fox Lake—in Channel Lake, Sept. 14, 1939, #1035; Lake Zurich—in Lake Zurich, Aug. 24, 1939, #914; Volo—Fish Lake, Aug. 24, 1939, #935.

K. OBESA var. MAJOR (Bern.) G. M. Smith. Tiffany, *loc. cit.*, p. 57. f. 190 (1934).
Britton: **Lake,** Fox Lake—channel between Grass Lake and Lake Marie, Sept. 14, 1939, #1028, 1029.

## NEPHROCYTIUM Naegeli, 1849

N. AGARDHIANUM Naeg. Tiffany, *loc. cit.*, p. 58. f. 195 (1934).
Transeau 1913B, p. 80: **Coles,** Ashmore, Charleston—ponds (May–Nov.). Britton: **Cook,** Northbrook—small pond at Somme Forest Preserve, May 15, 1938, #65.

N. LUNATUM W. West. Tiffany, *loc. cit.*, f. 193 (1934).
Britton: **Cook,** Sag Bridge—small ponds, Sept. 8, 1939, #998, 1000.

## OOCYSTIS Naegeli, 1845

O. BORGEI Snow. Tiffany, *loc. cit.*, p. 59. pl. 10. f. 216 (1934).
Ahlstrom 1936, p. 293: **Cook,** Evanston—Lake Michigan.

O. CRASSA Wittr. Tiffany, *loc. cit.*, f. 217 (1934).
Ahlstrom 1936, p. 293; Britton 1940, p. 71: **Cook,** Evanston—Lake Michigan; Morton Grove—small pond 1 mile N.W., June

23, 1938, #77; Northbrook—small pond on Techny Road ½ mile W. of Landwehr Road, June 27, 1938, #110, small ponds at Somme Forest Preserve, June 27, 1938, #112, May 8, 1939, #243.

O. ELLIPTICA W. West. Tiffany, *loc. cit.*, f. 218 (1934).

Britton 1940, p. 71: **Cook,** Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43, June 23, 1938, #77.

O. GIGAS Arch. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 127. f. 105 (1915).

Transeau: **Clark,** Casey—pond (Nov.).

O. NAEGELII A. Br. Brunnthaler, *loc. cit.*, f. 108 (1915).

Kofoid 1908, pp. 23, 25: **Mason,** Havana—Illinois River (Mar., May–Sept., Dec.).

O. SOLITARIA Wittr. Tiffany, Contrib. Franz T. Stone Lab. 6: 59. pl. 10. f. 212 (1934).

Transeau: **Clark,** Casey—pond (July, Nov.). **Coles,** Charleston—pond (Apr.). Britton: **Lake,** Fox Lake—channel entering E. side of Grass Lake, Aug. 25, 1939, #971. Kofoid 1908, pp. 23, 26: **Mason,** Havana—Illinois River ("probably throughout the year").

O. SOLITARIA f. MAJOR Wille. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 125 (1915).

Transeau 1913B, p. 80: **Clark,** Casey—pond (Sept., Nov.).

## SCHROEDERIA Lemmermann, 1899

S. SETIGERA (Schroed.) Lemm. Tiffany, Contrib. Franz T. Stone Lab. 6: 62. pl. 9. f. 172 (1934).

Kofoid 1908, pp. 23, 33, 292, 316: **Mason,** Havana—Illinois River (all months). Eddy 1931A, p. 486: **Piatt,** Monticello—Sangamon River (Sept.).

## SELENASTRUM Reinsch, 1867

S. BIBRAIANUM Reinsch. Tiffany, *loc. cit.*, p. 60. f. 198 (1934).

Britton: **Cook,** Palos Park—Calumet Sag Channel at Kean Ave., July 14, 1939, #559. Kofoid 1908, pp. 34, 316: **Mason,** Havana—Illinois River (Aug.–Nov.).

S. BIBRAIANUM var. GRACILE (Reinsch) Tiff. & Ahl. Tiffany, *loc. cit.*, f. 197 (1934).

*Selenastrum gracile* Reinsch

Britton: **Cook,** Argonne Forest Preserve—swamp at 95th St. and 104th Ave., July 13, 1939, #502, 503; Palos Park—Calumet Sag Channel at Kean Ave., July 14, 1939, #559. **Lake,** Antioch—Grass Lake-Lake Marie Channel, Sept. 14, 1939, #1028; Fox Lake—in Nippersink Lake, July 25, 1939, #602; Wauconda—Bangs Lake, Aug. 24, 1939, #924. Eddy 1931A, p. 486, as *S.*

*gracile:* **Macon**—Lake Decatur (Sept.). Britton: **McHenry,** Greenwood—Wonder Lake, July 6, 1939, #368; Richmond—Twin Lakes (Lake Elizabeth), Aug. 2, 1939, #729.

## TETRAEDRON Kuetzing, 1845

T. BIFURCATUM (Wille) Lag. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 156. f. 194 (1915).

*Polyedrium bifurcatum* Wille

Transeau: **Coles,** Charleston—ponds (July, Oct.). Kofoid 1908, p. 30, as *Polyedrium bifurcatum:* **Mason,** Havana—Illinois River ("summer").

T. GIGAS (Wittr.) Hansg. Brunnthaler, *loc. cit.*, p. 148. f. 159 (1915).

*Polyedrium gigas* Wittr.

Johnson & Atwell 1890, p. 19, as *Polyedrium gigas:* **Cook,** Lakeside—(May).

T. GRACILE (Reinsch) Hansg. Brunnthaler, *loc. cit.*, p. 157. f. 201 (1915).

*Polyedrium gracile* Reinsch

Kofoid 1908, p. 30, as *Polyedrium gracile:* **Mason,** Havana—Illinois River ("summer"). Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (July, Sept.).

T. LIMNETICUM Borge. Tiffany, Contrib. Franz T. Stone Lab. 6: 63. pl. 11. f. 256–257 (1934).

Britton: **Lake,** Wauconda—Slocum Lake, Aug. 24, 1939, #926.

T. LOBULATUM (Naeg.) Hansg. Tiffany, *loc. cit.*, f. 253 (1934).

Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (Sept.).

T. MINIMUM (A. Br.) Hansg. Tiffany, *loc. cit.*, p. 64. f. 233 (1934).

Britton: **Cook,** Evanston—small pond in Calvary Cemetery, June 23, 1938, #74; Morton Grove—small pond about 1 mile N.W., May 10, June 23, 1938, #43, 77; Northbrook—small pond on Techny Road about ½ mile W. of Landwehr Road, June 27, 1938, #110; Palos Park—swamp, July 13, 1939, #477; Sag Bridge—swamps, July 13, Sept. 8, 1939, #488, 1016, 1018. **Lake,** Fox Lake—in Nippersink Lake, July 25, 1939, #599; Wauconda—Bangs Lake, Aug. 24, 1939, #925. **McHenry,** Richmond—S. end of South Twin Lake (Lake Elizabeth), Aug. 2, 1939, #729.

T. MINIMUM f. TETRALOBULATUM Reinsch. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 148 (1915).

Britton: **Cook,** Techny—small pond about 1½ miles S.W., May 12, 1938, #64.

T. MUTICUM f. PUNCTULATUM Reinsch. Brunnthaler, *loc. cit.*, p. 147 (1915).

Collins 1909, p. 163.

T. QUADRATUM f. MINUS ACUTUM Reinsch. Brunnthaler, *loc. cit.*, p. 150 (1915).

Collins 1909, p. 164.

T. REGULARE Kuetz. Tiffany, Contrib. Franz T. Stone Lab. 6: 64. pl. 11. f. 231 (1934).

Britton: **Cook,** Northbrook—ponds at Somme Forest Preserve, June 27, 1938, #113, May 8, 1939, #240; Schnells Corner—ponds at Elk Grove Forest Preserve, June 22, 1939, #324.

T. TRIGONUM (Naeg.) Hansg. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 149. f. 163 (1915).

*Polyedrium trigonum* Naeg.

Kofoid 1908, p. 30, as *Polyedrium trigonum:* **Mason,** Havana—Illinois River (June–Oct.). Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (July, Sept., Dec.).

T. TRIGONUM f. MAJUS Brueg. Brunnthaler, *loc. cit.* (1915).

Collins 1909, p. 162.

T. TRIGONUM var. MINUS Reinsch. Brunnthaler, *loc. cit.* (1915).

*Polyedrium trigonum* var. *minus* Reinsch

Kofoid 1908, p. 30, as *Polyedrium t.* var. *minus:* **Mason,** Havana—Illinois River ("summer").

T. TRIGONUM var. TETRAGONUM (Naeg.) Rab. Brunnthaler, *loc. cit.* (1915).

*Polyedrium trigonum* var. *tetragonum* (Naeg.) Rab.

Kofoid 1908, p. 30, as *Polyedrium t.* var. *tetragonum:* **Mason,** Havana—Illinois River ("summer").

## TREUBARIA Bernard, 1908

T. CRASSISPINA G. M. Smith. Tiffany, Contrib. Franz T. Stone Lab. 6: 65. pl. 11. f. 262 (1934).

Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (Sept., Dec.).

## TROCHISCIA Kuetzing, 1845

T. ARGUTA (Reinsch) Hansg. Brunnthaler in Pascher, Suesswass.-fl. Deutsch. 5(2): 205 (1915).

Collins 1909, p. 146.

T. RETICULARIS (Reinsch) Hansg. Tiffany, Contrib. Franz T. Stone Lab. 6: 54. pl. 9. f. 183 (1934).

Collins 1909, p. 145; Transeau: **Coles,** Charleston—ditch (Apr.)

## Family: SCENEDESMACEAE

## ACTINASTRUM Lagerheim, 1882

A. HANTZSCHII Lag. Tiffany, *loc. cit.*, p. 72. pl. 10. f. 226 (1934).

Galtsoff 1924, pp. 399, 401, 402, 404, 405; **Carroll**—Mississippi

River (July, Sept.). Eddy 1931A, pp. 480, 483, 486: **Cass,** Chandlerville—Sangamon River (June–Sept.). Galtsoff, *loc. cit.:* **Hanson, Henderson, Jo Daviess**—Mississippi River (July–Sept.). Eddy, *loc. cit.:* **Macon,** Decatur—Lake Decatur (June, July); Harristown—Sangamon River (July). Kofoid 1908, pp. 23, 24, 292, 315: **Mason,** Havana—Illinois River (Jan., May–Nov.). Eddy, *loc. cit.:* **Menard,** Petersburg—Sangamon River (July, Sept.). Galtsoff, *loc. cit.:* **Mercer**—Mississippi and Edwards Rivers (July, Aug.). **Rock Island**—Mississippi River (July–Sept.). Eddy, *loc. cit.:* **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (July, Sept.). Galtsoff, *loc. cit.:* **Whiteside**—Mississippi River (July, Sept.).

A. HANTZSCHII var. FLUVIATILE Schroed. Tiffany, *loc. cit.* (1934). Britton: **Cook,** Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452. **McHenry,** Greenwood—Nippersink Creek near Thayer School, July 7, 1939, #432.

## CRUCIGENIA Morren, 1830

C. IRREGULARIS Wille. Tiffany, *loc. cit.*, p. 70. pl. 8. f. 154 (1934). Britton: **Cook,** Evanston—gravel-pit pond at Simpson St. and Grosse Point Road, Oct. 3, 1938, #212; Park Ridge—gravel-pit pond and swamp, July 12, 1939, #454; Sag Bridge—small pond and extensive swamp, Sept. 8, 1939, #1016. **McHenry,** Greenwood—swamp in Game Preserve 2 miles N.W., July 6, 1939, #395, 396; Woodstock—small pond about 1 mile S.E., July 7, 1939, #425. Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (July).

C. LAUTERBORNEI Schmid. Tiffany, *loc. cit.*, f. 158 (1934); Smith, Freshw. Alg. U. S., p. 519 (1933).

*Staurogenia lauterbornei* Schmid.

Britton: **Cook,** Palos Park—Calumet Sag Channel at Kean Ave., July 14, 1939, #559. Kofoid 1908, p. 34, as *Staurogenia lauterbornei:* **Mason,** Havana—Illinois River.

C. RECTANGULARIS (Naeg.) Gay. Tiffany, *loc. cit.*, f. 155 (1934). Transeau 1913B, p. 80: **Coles,** Charleston—pond (Sept.). Kofoid 1908, pp. 23, 25, 292, 315: **Mason,** Havana—Illinois River (May–Feb.).

C. TETRAPEDIA (Kirch.) W. & G. S. West. Tiffany, *loc. cit.*, f. 149, 150 (1934); Brunnthaler in Pascher, Suesswass.-fl. Deutsch 5(2): 174. f. 251 (1915).

*Tetrapedia emarginata* Schroed

Kofoid 1908, p. 22, as *Tetrapedia emarginata:* **Mason,** Havana—Illinois River (Aug.–Oct.).

## MICRACTINIUM Fresenius, 1858

M. PUSILLUM Fresen. Tiffany, *loc. cit.*, p. 72. pl. 12. f. 301 (1934); Smith, Bull. Wis. Geol. & Nat. Hist. Surv. 57(1): 125. pl. 28. f. 1–3 (1920).

*Richteriella botryoides* (Schmid.) Lemm.

Eddy 1931A, p. 486: **Cass,** Chandlerville—Sangamon River (Sept.). Ahlstrom 1936, p. 293: **Cook,** Evanston—Lake Michigan. Kofoid 1908, pp. 23, 30, as *Richteriella botryoides:* **Mason,** Havana—Illinois River (May–Nov.). Britton: **McHenry,** Greenwood—Nippersink Creek, July 7, 1939, #432. Eddy, *loc. cit.:* **Menard,** Petersburg—Sangamon River (Sept.).

M. QUADRISETUM (Lemm.) G. M. Smith. Tiffany, *loc. cit.*, f. 302 (1934).

Ahlstrom 1936, p. 293: **Cook,** Evanston—Lake Michigan.

## SCENEDESMUS Meyen, 1829

S. ABUNDANS (Kirch.) Chod. Smith, Trans. Wis. Acad. Sci. 18: 465. pl. 30, 31. f. 133–140 (1916).

*Scenedesmus quadricauda* var. *abundans* Kirch.

Baker 1922, p. 80: **Champaign,** Urbana—Boneyard Creek. Transeau 1913B, p. 80, as *S. q.* var. *abundans:* **Coles.**

S. ABUNDANS var. LONGICAUDA Smith. Smith, *loc. cit.*, p. 467. pl. 30. f. 121–125 (1916).

Britton: **Cook,** Evanston—small pond in Calvary Cemetery, June 23, 1938, #74; E. pond in Memorial Park Cemetery, June 27, 1938, #104.

S. ACUMINATUS (Lag.) Chod. Smith, *loc. cit.*, p. 437. pl. 25. f. 3–5 (1916).

*Selenastrum acuminatum* Lag.

Transeau 1913B, p. 80, as *Selenastrum acuminatum:* **Coles,** Charleston—ponds. Britton: **Cook,** Sag Bridge—swamp, July 13, 1939, #502. Galtsoff 1924, pp. 399, 402: **Hancock**—Lake Keokuk—Mississippi River (July). **Henderson**—Mississippi River (July, Aug.).

S. ACUTIFORMIS Schroed. Smith, *loc. cit.*, p. 456. pl. 26, 29. f. 28, 29, 84–89 (1916).

Britton 1940, p. 71: **Cook,** Glenview—swamp and temporary pond about 1½ miles W., May 12, 1938, #56; Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43; Sag Bridge—small pond and extensive swamp, Sept. 8, 1939, #1016. **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #255.

S. ARCUATUS Lemm. Smith, *loc. cit.*, p. 449. pl. 26, 29, 30. f. 19, 20, 94–100 (1916).

Ahlstrom 1936, p. 293; Britton: **Cook,** Evanston—Lake Michi-

gan; Sag Bridge—swamp, Sept. 8, 1939, #984. Britton: **Lake,** Antioch—channel between Grass Lake and Lake Marie, Sept. 14, 1939, #1029. Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole ponds (July, Sept.).

S. ARCUATUS var. PLATYDISCA G. M. SMITH. Smith, *loc. cit.*, p. 451. pl. 25. f. 11 (1916).

*Scenedesmus platydisca* (Smith) Chod.

Ahlstrom 1936, p. 293, as *S. platydisca;* Britton: **Cook,** Evanston—Lake Michigan; Palos Park—small shallow ponds, July 13, Sept. 8, 1939, #535, 536, 978; Sag Bridge—stone-quarry pond, Sept. 8, 1939, #1007; small pond and extensive swamp, Sept. 8, 1939, #1021. Britton: **Lake,** Fox Lake—in Fox Lake, Aug. 25, 1939, #951.

S. ARMATUS (Chod.) G. M. Smith. Smith, *loc. cit.*, p. 460. pl. 28–30. f. 53, 90–93, 109, 110 (1916).

Britton 1940, p. 71: **Cook,** Evanston—small pond in Calvary Cemetery, June 23, 1938, #74; small greenhouse reservoir E. of the North Shore Channel at Howard St., June 23, 1938, #75; Morton Grove—small greenhouse reservoir and small pond about 1 mile N.W., May 10, 1938, #42, 43. **Lake,** Highwood—small pond, May 15, 1938, #73; Wauconda—Bangs Lake, Aug. 24, 1939, #925.

S. BIJUGA (Turp.) Lag. Smith, *loc. cit.*, p. 441. pl. 25. f. 2 (1916).

*Scenedesmus bijugatus* (Turp.) Kuetz.

Transeau 1913B, p. 80; 1916, p. 125: **Coles,** Charleston—ponds (Apr., July). Kofoid 1908, p. 31, as *S. bijugatus:* **Mason,** Havana—Illinois River (May–Sept.). Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (Sept., Dec.).

S. BIJUGA var. ALTERNANS (Reinsch) Borge. Smith, *loc. cit.*, p. 447. f. 14, 15 (1916).

Transeau 1913B, p. 80; **Coles,** Charleston—ponds (Apr.–July).

S. BRASILIENSIS Bohlin. Smith, *loc. cit.*, p. 458. pl. 26. f. 30, 31 (1916).

Britton: **Cook,** Palos Park—small shallow ponds, July 13, 1939, #533, 534; Sag Bridge—small ponds and swamps, Sept. 8, 1939, #988, 996, 1005, 1016, 1018; Schnells Corner—small ponds in Elk Grove Forest Preserve, Aug. 8, 1939, #780, 785. **Lake,** Lake Zurich—in Lake Zurich, Aug. 24, 1939, #917. **McHenry,** McHenry—swamp E. of McCullom Lake, July 6, 1939, #374, 376.

S. CARINATUS (Lemm.) Chod. Smith, *loc. cit.*, p. 462. pl. 26. f. 25 (1916).

Britton: **McHenry,** Ridgefield—pond about 1 mile N.W., July 7, 1939, #417, 418.

S. DENTICULATUS Lag. Smith, *loc. cit.*, p. 452. pl. 26. f. 23 (1916).

Kofoid 1908, p. 31: **Mason,** Havana—Illinois River ("late summer—early autumn").

S. DIMORPHUS (Turp.) Kuetz. Smith, *loc. cit.*, p. 434. pl. 25, 27, 28. f. 8, 185–195 (1916).

Eddy 1931A, pp. 480, 483, 486: **Cass,** Chandlerville—Sangamon River (Sept.). Johnson & Atwell 1890, p. 19; Jelliffe 1893, p. 311; Britton: **Cook,** Argonne Forest Preserve—ponds and swamps at 95th St. & 100th & 104th Aves., July 13, 1939, #488, 534; Chicago—Lake Michigan; Evanston—aquarium (Mar.), small greenhouse reservoir, June 23, 1938, #75, small pond at Simpson St. and Grosse Point Road, June 27, 1938, #100; Orland Park—small pond and extensive swamp W. of Wolf Road on 131st St., Sept. 8, 1939, #1021. Britton: **Lake,** Highwood—small pond, May 15, 1938, #73; Klondike—in Grass Lake and connecting channel to Fox Lake, Aug. 25, 1939, #945, 948, 969; Wauconda—Bangs Lake, Aug. 24, 1939, #925. Eddy, *loc. cit.* (1931A): **Macon,** Decatur—Lake Decatur (July); Harristown—Sangamon River (July, Sept.). Britton: **McHenry,** McHenry—swamp E. of McCullom Lake, July 6, 1939, #374, 376. Eddy, *loc. cit.* (1931A): **Menard,** Petersburg—Sangamon River (July, Sept.). Eddy 1931B, p. 461: **Pulaski,** Wetaug—sink-hole pond (Sept.). Eddy, *loc. cit.* (1931A): **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (June–Sept.).

S. LONGUS Mey. Smith, *loc. cit.*, p. 469. pl. 28, 31. f. 54, 156–158 (1916).

*Scenedesmus quadricauda* f. *horridus* Kirch.; *S. quadricauda* f. *setosus* Kirch.

Transeau 1913B, p. 80, as *S. q.* f. *horridus* and *setosus:* **Coles.**

S. LONGUS var. MINUTUS G. M. Smith. Smith, *loc. cit.*, p. 471. pl. 31. f. 147–150 (1916).

*Scenedesmus minutus* (Smith) Chod.

Galtsoff 1924, p. 399, as *S. minutus:* **Carroll, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside**—Mississippi River (Aug., Sept.).

S. OBLIQUUS (Turp.) Kuetz. Smith, *loc cit.*, p. 428. pl. 25, 29. f. 7, 63–68 (1916).

*Athrodesmus acutus* Ehr.

Solheim & Penfound 1928, p. 87: **Champaign,** Urbana—small stream (June). Transeau 1913B, p. 80: **Coles,** Charleston—pond. Britton: **Cook,** Evanston—small pond in Calvary Cemetery, June 23, 1938, #74; Glenview—swamp and temporary pond about 1½ miles W., June 23, 1938, #97; Northbrook—small pond in Somme Forest Preserve, May 15, 1938, #65, swamp about 2½ miles S.W., May 12, 1938, #60. **Lake,** Highwood—small pond, May 15, 1938, #73. Kofoid 1908, pp. 23, 31, 292, 316: **Mason,** Havana—Illinois River (Apr.–Nov.). Britton: **McHenry,** McHenry—swamp E. of McCullom Lake, July 6, 1939, #374. Bailey

1845, p. 34, as *Arthrodesmus acutus:* **St. Clair**—Mississippi River.

S. OPOLIENSIS Richt. Smith, *loc. cit.*, p. 481. pl. 27, 32. f. 49, 181–184 (1916).

Britton: **Cook,** Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452. **Lake,** Fox Lake—in Fox Lake, Aug. 25, 1939, #950.

S. PROTUBERANS Fritsch & Rich. Tiffany, Contrib. Franz T. Stone Lab. 6: 68. pl. 12. f. 295 (1934).

Britton: **Cook,** Sag Bridge—swamp, Sept. 8, 1939, #984; Wheeling—DesPlaines River at Dam #1 (Hintz Road), Aug. 8, 1939, #777.

S. QUADRICAUDA (Turp.) Breb. Smith, Trans. Wis. Acad. Sci. 18: 473. pl. 27, 31, 32. f. 39, 172–176 (1916).

*Scenedesmus caudatus* Corda; *S. genuinus* Kirch.; *Arthrodesmus quadricaudatus* Ehr.

Bailey 1845, p. 34, as *Arthrodesmus quadricaudatus* (St. Clair). Johnson & Atwell 1890, p. 19; Jelliffe 1893, p. 311, as *S. caudatus* (Cook). Kofoid 1908, pp. 23, 31, 292, 316, also as *S. genuinus* (Mason). Transeau 1913B, p. 80; 1913C, p. 36; 1916, p. 125 (Coles, Edgar, Moultrie). Galtsoff 1924, pp. 399, 401, 402, 404, 405 (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy & Simer 1929, p. 62 (Morgan). Eddy 1931A, pp. 480, 483, 476 (Cass, Macon, Menard, Sangamon); 1931B, p. 461 (Pulaski); 1934, pp. 385, 386, 388–395, 397, 399, 400, 402, 403 (Adams, Alexander, Calhoun, Champaign, Hancock, Henry, Jackson, Jersey, Macon, Madison, Mason, Massac, McHenry, Monroe, Ogle, Piatt, Pike, Pulaski, Randolph, St. Clair, Union, Whiteside). Britton (Cook, Lake).

**Adams,** Mississippi River (June). **Alexander**—Mississippi and Ohio Rivers (June); Horseshoe Lake (June–Aug.). **Calhoun, Carroll**—Mississippi River (June–Sept.). **Cass,** Chandlerville—Sangamon River (Sept.). **Champaign,** Seymour—temporary pond (Feb.–July); Urbana—park pond (all months). **Coles,** Charleston—ponds (Apr.–Nov.). **Cook,** Chicago—Lake Michigan; Evanston—aquarium (Mar.), small greenhouse reservoir, June 23, 1938, #75. **Edgar,** Paris—reservoir (July). **Hancock, Henderson**—Mississippi River (June–Aug.). **Henry,** Colona—slough (June–Aug.). **Jackson, Jersey, Jo Daviess**—Mississippi River (June–Sept.). **Lake,** Waukegan—ditch, July 29, 1938, #173. **Macon,** Decatur—park pond (Aug.–Oct.), Lake Decatur (Mar.–Nov.); Harristown—Sangamon River (June–Sept.). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (all months). **Massac**—Ohio River (June). **McHenry**—Fox

River. **Menard,** Petersburg—Sangamon River (June–Sept.). **Mercer,** New Boston—Edwards River (July); Mississippi River (July, Sept.). **Monroe**—Mississippi River (June). **Morgan,** Meredosia—Illinois River. **Moultrie,** Sullivan—artificial pond (Aug.). **Ogle,** Grand Detour—slough (June–Aug.). **Piatt,** Monticello—Sangamon River (June–Aug.). **Pike**—Mississippi River (June). **Pulaski**—Mississippi River (June); Wetaug—sink-hole ponds (July, Sept., Dec.). **Randolph, Rock Island**—Mississippi River (June–Sept.). **Sangamon,** Illiopolis, Riverton, Springfield —Sangamon River (June–Sept.). **St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside**—Mississippi River (July–Sept.); Erie—Rock River Slough and Hatwood Slough (June–Aug.).

S. QUADRICAUDA var. QUADRISPINA (Chod.) G. M. Smith. Smith, *loc. cit.*, p. 479. pl. 27, 31. f. 43, 167–170 (1916).

Britton: **Cook,** Techny—small pond about 1½ miles S.W., May 12, 1938, #64. **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #255. **McHenry,** McHenry—swamp on N.E. side of McCullom Lake, July 6, 1939, #385.

S. QUADRICAUDA var. WESTII G. M. Smith. Smith, *loc. cit.*, p. 480. pl. 32. f. 177–180 (1916).

Britton: **Cook,** Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452; Sag Bridge—swamp, Sept. 8, 1939, #984. **Lake,** Fox Lake—in Fox Lake, Grass Lake, Lake Marie, Petite Lake and connecting channels, July 25, Aug. 25, Sept. 14, 1939, #604, 605, 942, 944, 945, 948, 950, 951, 953, 954, 969, 1028, 1029.

## Order: SIPHONALES

### Family: VAUCHERIACEAE

### DICHOTOMOSIPHON Ernst, 1902

D. TUBEROSUS (A. Br.) Ernst. Brown, Trans. Amer. Mic. Soc. 48: 102. pl. 20. f. 38, 39 (1929).

*Vaucheria tuberosa* A. Br.

Forbes 1883A, p. 495, as *Vaucheria tuberosa;* Drouet, Field Mus.: **Cook,** Chicago—Lake Michigan; Lemont—in running water and on sides of quarry, coll. by F. Drouet and D. Richards, Apr. 15, 1939; Willow Springs—floating in swamp along Route 4A, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938. **Dupage,** Black Partridge Woods—in a stream, coll. by P. C. Standley, J. A. Steyermark and F. Drouet, Oct. 18, 1938. Collins 1909, p. 431; Brown 1929, p. 102; Smith 1933, p. 529.

## VAUCHERIA DeCandolle, 1803

V. AVERSA Hass. Brown, *loc. cit.*, p. 96. pl. 16. f. 14 (1929). Johnson & Atwell 1890, p. 19: **Cook,** prairie ditches—(Apr.).

V. GARDNERI Coll. Brown, *loc. cit.*, p. 100. pl. 18. f. 27 (1929). Transeau: **Coles,** Ashmore—pond (Apr.). Brown 1929, p. 100.

V. GEMINATA (Vauch.) D. C. Brown, *loc. cit.*, pl. 18. f. 31 (1929). Transeau 1913B, p. 89; 1913C, p. 32; 1916, p. 124: **Champaign,** Urbana—pond (Apr.). **Clark,** Casey—ponds (Apr., Nov.). **Coles,** Ashmore—on soil in woods (Apr., May), pond and bayou of Polecat Creek (Apr.); Charleston, Lerna, Mattoon, Wrightsville —ponds, pools, springs, swamps and small streams (Feb.–July, Nov.). Johnson & Atwell 1890, p. 19; O'Hanlon 1930, p. 100: **Cook,** Evanston—"Grand Crossing" (Apr.); River Forest—ditch. Transeau: **Cumberland,** Bradbury, Greenup—ditch pools (Apr., Nov.). **Douglas,** Arcola—ditch (May). **Edgar,** Paris—reservoir and ditches (Mar., Apr.). **Effingham,** Effingham—small artificial pond (Dec.). **Jasper,** Rose Hill—streams (Apr.). **Lawrence,** Pinkstaff—in a spring (Dec.). **Montgomery,** Waggoner—wet-weather pond (Dec.). **Richland,** Calhoun—small stream, and slough of Bonpas Creek (Apr.). Brown 1929, p. 96.

V. GEMINATA var. DEPRESSA Trans. Transeau, Ohio Jour. Sci. 17: 228 (1917).

Transeau: **Clark,** Westfield—pond (Apr.). Collins 1918, p. 92.

V. GEMINATA f. RACEMOSA (Vauch.) Walz. Brown, Trans. Amer. Mic. Soc. 48: 96 (1929).

Transeau 1913B, p. 89: **Coles,** Charleston—Kickapoo Creek and other small streams, ponds, and bayou of Embarrass River (Apr.–July, Oct.). Lerna—small stream (May). Davis 1904, p. 82: **Cook,** Chicago—(Mar., Apr.). Transeau, *loc. cit.:* **Effingham,** Effingham—pond (May). **Montgomery,** Waggoner—wet-weather pond (Dec.). Brown 1929, p. 96.

V. HAMATA (Vauch.) D. C. Brown, *loc. cit.*, p. 98. pl. 19. f. 37 (1929). Transeau 1913B, p. 89; 1916, p. 124: **Coles,** Ashmore—Polecat Creek (Apr.), on soil at pond (Oct.); Lerna—creek (May). Britton: **Cook,** Northbrook—small pond at Somme Forest Preserve, May 15, 1938, #68. Transeau: **Jasper,** Newton—pond (May).

V. LONGIPES Coll. Brown, *loc. cit.*, p. 99. pl. 18. f. 28 (1929). Transeau: **Coles,** Ashore—pond (Apr.). Brown 1929, p. 99.

V. ORNITHOCEPHALA Ag. Brown, *loc. cit.*, p. 97. pl. 16. f. 15 (1929). Brown 1929, p. 97.

V. POLYSPERMA Hass. Brown, *loc. cit.*, p. 97. pl. 17. f. 20 (1929). Transeau 1913B, p. 89: **Clark,** Casey—ponds (Apr., May). **Coles,** Charleston—ponds (June, Oct.); Lerna—pond (Apr.). Brown 1929, p. 97.

V. REPENS Hass. Brown, *loc. cit.*, p. 94. pl. 15. f. 8 (1929).
Agersborg 1930, p. 106: **Macon,** Decatur—warm waste-water ditch (Dec.–Feb.).

V. SESSILIS (Vauch.) D. C. Brown, *loc. cit.*, p. 93. pl. 15. f. 11 (1929).
Transeau 1913B, p. 89; 1913C, p. 32; 1916, p. 124: **Clark,** Casey—ponds (Apr., Oct., Nov.). **Coles,** Ashmore, Charleston, Lerna, Mattoon, Wrightsville—ponds, small streams and swamps (Jan.–June, Oct., Nov.). O'Hanlon 1930, p. 100: **Cook,** River Forest. Transeau: **Douglas,** Arthur—pond (May). **Jasper,** Bogota—creek (Aug.). Britton: **Kankakee,** Kankakee—about 5 miles N. in slough along Route 49, April 18, 1938, #5. **Lake,** Everett—small pond, April 18, 1938, #71. Transeau: **Lawrence,** Lawrenceville—pool (Apr.), gravel pit (May); Pinkstaff—spring (Dec.). **Richland,** Calhoun—Bonpas Creek slough (Apr.). Brown 1929, p. 93.

V. TERRESTRIS (Vauch.) D. C. Collins, Tufts Coll. Stud. 2(3): 426 (1909).
Transeau 1913B, p. 89; 1913C, p. 36: **Coles,** Ashmore—on soil in woods (Apr.); Charleston—ponds, pools (Apr., May), on soil on campus (Oct.). O'Hanlon 1930, p. 100: **Cook,** River Forest—on banks of DesPlaines River.

Order: ZYGNEMATALES
Family: ZYGNEMATACEAE

MOUGEOTIA Agardh, 1824

M. BOODLEI (W. & G. S. West) Coll. Transeau, Ohio Jour. Sci. 26: 324. pl. 6. f. 78–80 (1926).
Collins 1912, p. 76; Transeau 1913B, p. 78; 1926, p. 324: **Coles** Charleston—ponds (Apr.–June, Sept.–Nov.). **Douglas,** Newman—pond 4 miles S.W. (May).

M. CALCAREA (Cl.) Wittr. Transeau, *loc. cit.*, p. 316. pl. 1. f. 9–14 (1926).
Collins 1912, p. 76; Transeau 1913B, p. 78; 1926, p. 316: **Clark,** Casey—pond (Apr.).

M. ELEGANTULA Wittr. Transeau, *loc. cit.*, p. 323. pl. 6. f. 84–87 (1926).
Transeau 1926, p. 323: **Coles,** Charleston—pond (Apr., May).

M. FLORIDANA Trans. Transeau, Trans. Amer. Mic. Soc. 53: 224 (1934).
Transeau 1934, p. 224.

M. GENUFLEXA (Dillw.) Ag. Transeau, Ohio Jour. Sci. 26: 320. pl. 4. f. 43, 44 (1926).
*Mougeotia mirabilis* (A. Br.) Wittr.; *Pleurocarpus mirabilis* A. Br.
Transeau 1913B, pl 78; 1916, p. 125; 1926, p. 320: **Clark,** Casey—

pond (Apr.). **Coles,** Charleston—ponds and ditches (Apr.–Aug., Oct.); Lerna—ponds (May). Johnson & Atwell 1890, p. 20, as *Pleurocarpus mirabilis;* O'Hanlon 1930, p. 98, as *M. mirabilis:* **Cook,** Palos Park—pond (June); Winnetka—(Apr.). Transeau: **Effingham,** Effingham—ditch (May). **Richland,** Olney—Fox River (Aug.).

M. GRACILLIMA (Hass.) Wittr. Transeau, *loc. cit.*, p. 325. pl. 6. f. 95, 96 (1926).

Transeau 1926, p. 325: **Clark,** Casey—pond 3½ miles N. (Apr.).

M. NUMMULOIDES (Hass.) DeToni. Transeau, *loc. cit.*, p. 317. pl. 1. f. 15, 16 (1926).

*Mesocarpus nummuloides* Hass.

Johnson & Atwell 1890, p. 20, as *Mesocarpus nummuloides:* **Cook,** Evanston—aquarium (Mar.).

M. QUADRANGULATA Hass. Transeau, *loc. cit.*, p. 324. pl. 5. f. 70–72 (1926).

Transeau 1913B, p. 78; 1926, p. 324: **Coles,** Charleston—ponds and pools (May).

M. REINSCHII Trans. Transeau *et al.*, Trans. Amer. Mic. Soc. 53: 224. pl. 20. f. 44 (1934).

*Mougeotia genuflexa* var. *gracilis* (Kuetz.) Reinsch.

Transeau 1913B, p. 78; 1926, p. 320; Collins 1918, p. 21, as *M. g.* var. *gracilis:* **Coles,** Charleston, Lerna—ponds and ditches (Mar.–May, Aug.).

M. ROBUSTA (DeBary) Wittr. Transeau, Ohio Jour. Sci. 26: 318. pl. 3. f. 39–41 (1926). Czurda in Pascher, Suesswass.-fl. Mitteleur. 9: 73. f. 53 (1932).

*Mougeotia robusta* var. *biornata* wittr.

Transeau 1913B, p. 78; 1916, p. 124; 1926, p. 318; Collins 1918, also as *M. r.* var. *biornata:* **Clay**—pond and small stream (May). **Coles,** Charleston—ponds, pools and small streams (Apr.–July, Sept.), on cement near lake (June). **Jasper,** Bogota—creek 6 miles S.W. (Aug.). **Montgomery,** Coffeen—reservoir pond (May).

M. SCALARIS Hass. Transeau, *loc. cit.*, p. 317. pl. 2. f. 25–27 (1926); DeToni, Sylloge Algarum 1(2): 712 (1889).

*Mesocarpus scalaris* DeBary

Transeau 1913B, p. 78; 1916, p. 124; 1926, p. 317: **Coles,** Ashmore—ponds (Apr.); Charleston—ponds (May). Johnson & Atwell 1890, p. 20, as *Mesocarpus scalaris:* **Cook,** Winnetka—(Apr.). Transeau: **Montgomery,** Coffeen—stream (May).

M. SPHAEROCARPA Wolle. Transeau, *loc. cit.*, p. 319. pl. 3. f. 28–33 (1926).

*Mougeotia divaricata* Wolle

Transeau 1913B, p. 78, as *M. divaricata:* **Clark,** Casey—pond

(Apr.). **Coles,** Ashmore, Charleston—ponds and small streams (May–Jan.). **Marion,** Kinmundy—small pond (Aug.).

M. TENUIS (Cl.) Wittr. Transeau, *loc. cit.*, p. 322. pl. 5. f. 55–59 (1926); Czurda in Pascher, Suesswass.-fl. Mitteleur. 9: 80. f. 66 (1932).

*Mougeotia notabilis* Hass.; *M. transeauii* Coll.

Transeau 1913B, p. 78; Collins 1912, p. 77, as *M. transeauii;* Transeau 1926, p. 322, as *M. notabilis:* **Coles,** Charleston—pond (May–Nov.). **Cumberland,** Greenup—Embarrass River (Sept.). **Montgomery,** Coffen—reservoir pond (May).

M. TUMIDULA Trans. Transeau, *loc. cit.*, p. 326. pl. 7. f. 105 (1926).

Transeau 1914, p. 297; 1926, p. 326; Collins 1918, p. 21: **Jasper,** Wheeler—Embarrass River (Sept.).

M. VIRIDIS (Kuetz.) Wittr. Transeau, *loc. cit.*, p. 323. f. 97, 98 (1926).

Transeau 1913B, p. 79; 1926, p. 323; **Coles,** Charleston—pond (May).

## SIROGONIUM Kuetzing, 1843

S. ILLINOISENSE (Trans.) G. M. Smith. Smith, Freshw. Alg. U. S., p. 557 (1933).

*Spirogyra illinoisensis* Trans.

Transeau 1913B, p. 76; 1914, p. 296; Collins 1918, p. 16, as *Spirogyra illinoisensis;* Smith 1933, p. 557: **Coles,** Lerna—ponds (May, June).

S. STICTICUM (Engl. Bot.) Kuetz. Smith, *loc. cit.*, p. 557. f. 383 (1933).

*Spirogyra stictica* (Engl. Bot.) Wille.

Transeau 1913B, p. 77, as *Spirogyra stictica:* **Clark,** Casey—ponds (Apr., May). **Coles,** Ashmore—ponds (Apr., May). **Montgomery,** Coffeen—ponds (May, June). **Moultrie,** Sullivan—artificial pond (May).

## SPIROGYRA Link, 1820

S. AREOLATA Lag. Czurda in Pascher, Suesswass.-fl. Mitteleur. 9: 146. f. 144 (1932).

Transeau 1913B, p. 75: **Clark,** Casey—ponds (Apr., May). **Coles,** Charleston—ponds (Apr.–June). **Cumberland,** Greenup—pond (May); Jewett—small streams (May). **Lawrence,** Lawrenceville—gravel pit (Apr.).

S. BORGEANA Trans. Transeau, Ohio Jour. Sci. 16: 23 (1915).

Transeau 1915, p. 23; Collins 1918, p. 13: **Coles,** Charleston—pond and stream (May, June).

S. CATENAEFORMIS (Hass.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 108 (1909).

Transeau 1913B, p. 75; 1916, p. 124: **Clark**—Whetstone Creek

(Oct.); Casey—ponds (May). **Coles,** Ashmore, Charleston, Dorans, Lerna, Wrightsville—ponds, Kickapoo Creek and other small streams (all months). **Edgar,** Paris—ditch (Mar.). **Effingham,** Effingham—pond (Dec.). **Jasper,** Newton—pond (May). **Lawrence,** Lawrenceville—Beaver Ditch (Aug., Sept.); Pinkstaff—bayou of Bee Branch Creek (Dec.). **Richland,** Olney—Fox River (Aug.).

S. CIRCUMLINEATA Trans. Transeau, Amer. Jour. Bot. 1: 293. pl. 26. f. 5, 6, (1914).

Transeau 1913B, p. 75; 1914, p. 293; Collins 1918, p. 13: **Clark,** Westfield—ditch (June). **Coles,** Charleston, Lerna—pond (Apr., May). Britton: **Cook,** Glenview—small pond and swamp about 1½ miles W. on Glenview Road, May 12, 1938, #57.

S. CLEVEANA Trans. Transeau, *et al.*, Trans. Amer. Mic. Soc. 53: 226 (1934).

Transeau: **Clark,** Casey—pond (Apr.).

S. COMMUNIS (Hass.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 109 (1909).

Transeau 1913B, p. 75: **Coles,** Charleston, Lerna—ponds and small intermittent streams (May).

S. CONDENSATA (Vauch.) Kuetz. Collins, *loc. cit.* (1909).

Transeau 1913B, p. 75: **Coles,** Charleston—ponds and small streams (Mar.–May, Oct., Nov.).

S. CORRUGATA Trans. Transeau, *et al.*, Trans. Amer. Mic. Soc. 53: 229. pl. 21. f. 63 (1934).

Transeau 1934, p. 229.

S. CRASSA Kuetz. Collins, Tufts Coll. Stud. 2(3): 112 (1909).

Transeau 1913B, p. 75: **Clark,** Casey—pond (Sept.). **Coles,** Ashmore, Charleston—ponds, pools, Kickapoo Creek and other small streams (Apr.–Jan.). Johnson & Atwell 1890, p. 19: **Cook**—"Big Ditch" (Mar.). Agersborg 1930, pp. 106, 110: **Macon,** Decatur—warm waste-water in ditch (Dec.–Feb.). Transeau: **Jasper,** Bogota—creek 6 miles S.W. (Aug.); Newton—pond (May).

S. CRASSOIDEA Trans. Transeau, Amer. Jour. Bot. 1: 295. pl. 27. f. 3, 4 (1914).

*Spirogyra ellipsospora* var. *crassoidea* Trans.

Transeau 1914, p. 295; Collins 1918, p. 15, as *S. e.* var. *crassoidea:* **Coles,** Charleston—pond (July, Nov.). **Montgomery,** Coffeen—pond (May).

S. DAEDALEA Lag. Collins, Tufts Coll. Stud. 4(7): 14 (1918).

Transeau 1915, p. 24; Collins 1918, p. 14: **Montgomery,** Coffeen—pond.

S. DECIMINA (Muell.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 110 (1909).

Transeau 1913B, p. 75; 1913C, p. 33: **Coles,** Ashmore—Polecat Creek (June); Charleston—ponds, ditches, pools, and small streams (Jan.–June, Sept., Nov.). Johnson & Atwell 1890, p. 20: **Cook,** Woodlawn—(Mar.). Transeau: **Cumberland,** Greenup—pond (Sept.). **Edgar,** Paris—reservoir lake (Mar., May). **Effingham,** Effingham—pool (Dec.). **Lawrence,** Pinkstaff—small stream 3 miles E. (Aug., Sept.). **Moultrie,** Sullivan—cut-off of Kaskaskia River, and an artificial pond (July).

S. DENTICULATA Trans. Transeau *et al.*, Trans. Amer. Mic. Soc. 53: 226 (1934).

Transeau 1934, p. 226.

S. DILUTA Wood. Transeau, Ohio Jour. Sci. 16: 27 (1915).

Transeau 1915, p. 27: **Montgomery,** Coffeen, Donnellson—lake and ponds (June).

S. DISCRETA Trans. Transeau, Ohio Jour. Sci. 34: 420 (1934).
*Spirogyra inflata* var. *foveolata* Trans.

Transeau 1913B, p. 76; 1914, p. 291; Collins 1918, p. 13, as *S. i.* var. *foveolata:* **Clark,** Casey—pond (Apr.). **Coles,** Charleston—creek.

S. DISTENTA Trans. Transeau, *loc. cit.*, p. 420 (1934).

Transeau 1934, p. 420.

S. DUBIA Kuetz. Collins, Tufts Coll. Stud. 2(3): 115 (1909).

Transeau 1913B, p. 75: **Coles,** Ashmore, Charleston, Lerna—ponds and pools (May–July); Rardin—creek (Aug.). Johnson & Atwell 1890, p. 20: **Cook,** Woodlawn—(June). Transeau: **Douglas,** Arcola, Arthur—ponds (July). **Jasper,** Wheeler—Embarrass River (Sept.). **Lawrence,** Pinkstaff—spring-fed pond and stream 3 miles E. (July, Aug.). **Montgomery,** Hillsboro—Chautauqua Lake (July). **Richland,** Olney—creek (Aug.).

S. ELLIPSOSPORA Trans. Transeau, Amer. Jour. Bot. 1: 294. pl. 27. f. 1 (1914).

Transeau 1914, p. 294; 1915, p. 25; 1916, p. 124; Collins 1918, p. 15: **Clark,** Casey—ponds (May, July, Nov.). **Coles,** Charleston—ponds and Kickapoo Creek (Apr.–Nov.). **Montgomery,** Coffeen—pond (May, June).

S. FLUVIATILIS Hilse. Collins, Tufts Coll. Stud. 2(3): 114 (1909).

Transeau 1913B, p. 75; 1915, p. 26: **Clark,** Casey—pond (Nov.). **Coles,** Ashmore—Polecat Creek (June, Oct.); Charleston—ponds, ditches, pools, Embarrass River, Kickapoo Creek and other small streams (Apr.–Dec.); Rardin—creek (Aug.). Johnson & Atwell 1890, p. 20: **Cook,** Bowmanville—running spring; Jefferson (July). Transeau: **Cumberland,** Greenup—Embarras

River (Sept.). **Fayette,** Bingham—creek (June). **Jasper,** Wheeler —pond, and Embarrass River (Mar., Sept.). **Lawrence,** Pinkstaff—small stream (July). **Richland,** Olney—Creek (Aug.).

S. FORMOSA (Trans.) Czurda. Pascher, Suesswass.-fl. Mitteleur. 9: 203 (1932).

*Spirogyra crassa* var. *formosa* Trans.

Transeau 1915, p. 27; Collins 1918, p. 13, as *S. c.* var. *formosa:* **Coles,** Ashmore—pond (June).

S. GRACILIS (Hass.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 114 (1909).

Transeau 1913B, p. 75: **Clark,** Casey—swampy intermittent stream (Apr.).

S. GREVILLEANA (Hass.) Kuetz. Collins, *loc. cit.*, p. 117 (1909).

Transeau 1913B, p. 76: **Clark,** Casey—ponds (Apr.). **Coles,** Charleston—ponds, pools and small streams (Mar.–June, Sept., Nov.). **Fayette,** Bingham—creek (Aug.). **Jasper,** Bogota—creek 6 miles S.W. (Aug.).

S. GROENLANDICA Rosenw. Collins, *loc. cit.* (1909).

Transeau: **Coles,** Lerna—pond (May).

S. HASSALLII (Jenn.) Petit. Collins, *loc. cit.* (1909).

Solheim & Penfound 1928, p. 88: **Champaign,** Urbana—small stream (Mar.). Transeau 1913B, p. 76: **Clark,** Casey—ponds (May, Nov.). **Coles,** Charleston—creek (Feb.). **Cumberland,** Greenup—ditch (Nov.).

S. HYDRODICTYA Trans. Transeau, Ohio Jour. Sci. 16: 28 (1915).

Transeau 1915, p. 28; Collins 1918, p. 17: **Montgomery,** Coffeen —(May).

S. INCONSTANS Coll. Collins, Tufts Coll. Stud. 3(2): 73 (1912).

Collins 1912, p. 73; 1918, p. 17 (the Illinois record of *Spirogyra fallax* based on material in the collection of Prof. E. N. Transeau belongs here); Transeau 1913B, p. 76; **Clark,** Casey—ponds and small streams (Apr., May). **Coles,** Charleston, Lerna—ponds (May). Britton: **Cook,** Glenview—swamp and temporary pond about 1½ miles W. on Central Road, May 12, 1938, #56. Transeau: **Cumberland,** Greenup—pond (May). Britton: **Lake,** Everett—small pond 1 mile S., May 15, 1938, #71. Transeau: **Montgomery,** Coffeen—pond (May).

S. INFLATA (Vauch.) Rab. Collins, Tufts Coll. Stud. 2(3): 116 (1909).

Transeau 1913B, p. 76; 1916, p. 124: **Clark,** Casey—ponds and swampy stream (Apr., May, Sept.). **Coles,** Ashmore, Charleston, Dorans, Lerna, Mattoon—ponds, pools, ditches and small streams (all months). **Cumberland,** Greenup—5 miles N. in Embarrass River (Sept.); Jewett—pond and small streams (May). **Douglas,** Arthur—pond (May). **Edgar,** Paris—reservoir lake and ditches (Mar.). **Effingham,** Effingham—(Apr.). Britton

**Lake,** Everett—small pond about 1 mile S., Apr. 15, 1938, #71. Transeau: **Lawrence,** Lawrenceville—gravel pit (Apr.); Pinkstaff—bayou of Bee Branch Creek, and pond (Apr.). **Richland,** Calhoun—pond (Apr.).

S. INSIGNIS (Hass.) Kuetz. Collins, *loc. cit.*, p. 117 (1909).
Transeau: **Clark,** Casey—pond (Apr., May). **Coles,** Ashmore—ponds (Apr.).

S. IRREGULARIS Naeg. Collins, Tufts Coll. Stud. 4(7): 18 (1918).
Transeau 1916, p. 124; Collins 1918, p. 18: **Coles,** Charleston—ponds (June–Sept.). **Douglas,** Arthur—pond (July).

S. JUERGENSII Kuetz. Collins, Tufts Coll. Stud. 2(3): 108 (1909).
Transeau 1913B, p. 76; 1915, p. 23: **Clark,** Casey—ponds (Apr., May); Westfield—ditch (June). **Coles,** Ashmore, Charleston—ponds and small streams (Apr.–June). Johnson & Atwell 1890, p. 20: **Cook**—prairie ditches (Mar.). Transeau: **Cumberland,** Greenup—pond (May), Embarrass River 5 miles N. of (Sept.). **Douglas,** Arthur—ponds (May). **Lawrence,** Lawrenceville—Beaver Ditch (Aug.); Pinkstaff—bayou of Bee Branch Creek (Mar., Nov.). **Montgomery,** Coffeen—lake and pond (June).

S. JUGALIS (Dillwn.) Kuetz. Collins, *loc. cit.*, p. 111 (1909).
Transeau 1913B, p. 76: **Coles,** Charleston—pond (May); Wrightsville—small pond (Nov.).

S. LAGERHEIMII Wittr. Collins, Tufts Coll. Stud. 4(7): 13 (1918).
Transeau 1915, p. 24; Collins 1918, p. 13: **Clark,** Casey—pond 3 miles N. of (Apr.); Westfield—artesian pond (Apr.). **Coles,** Lerna—pond (May). **Cumberland,** Bradbury—pool (Apr.).

S. LONGATA (Vauch.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 107 (1909).
Transeau 1913B, p. 76: **Champaign,** Urbana—pond E. of (Apr.). **Clark,** Casey—pond (Apr.); Westfield—artesian pond (Apr.). **Coles,** Ashmore, Charleston—ponds and small streams (Mar.–June, Sept.). Johnson & Atwell 1890, p. 20: **Cook,** Woodlawn; "Big Ditch" (Mar.–June). Transeau: **Cumberland,** Greenup, Jewett—ponds and ditches (Apr., May). **Edgar,** Paris—reservoir lake (Mar., Apr.). **Lawrence,** Lawrenceville—ditch (May).

S. MAJUSCULA (Kuetz.) Czurda. Pascher, Suesswass.-fl. Mitteleur. 9: 204. f. 220 (1932).
*Spirogyra orthospira* Naeg.
Collins 1912, p. 72; Transeau 1913B, p. 77: **Coles,**Charleston, Lerna—ponds, pools, ditches and small streams (Apr.–July, Nov.). Johnson & Atwell 1890, p. 20, as *S. orthospira:* **Cook,** Woodlawn—(June). Transeau: **Cumberland,** Greenup—ditch (Nov.). **Douglas,** Arcola, Arthur—ponds and pools (May). **Effingham,** Effingham—pond and pool (May). **Montgomery,**

Coffeen—ponds (May). **Moultrie,** Sullivan—cut-off of Kaskaskia River (July).

S. MAXIMA (Hass.) Wittr. Collins, Tufts Coll. Stud. 2(3): 112 (1909). Transeau 1913B, p. 76; 1913C, p. 33: **Clay,** Sailor Spring—creek N. of (Aug.). **Coles,** Ashmore, Charleston—ponds, bayous and small streams (May–Nov.).

S. MICROPUNCTATA Trans. Transeau, Ohio Jour. Sci. 16: 27 (1915). Transeau 1915, p. 27; Collins 1918, p. 16: **Coles,** Charleston—ponds (May, June).

S. MIRABILIS (Hass.) Kuetz. Czurda in Pascher, Suesswass.-fl. Mitteleur. 9: 142. f. 138 (1932).

Transeau: **Coles,** Charleston—pool (July). Johnson & Atwell 1890, p. 20: **Cook**—"Old Ditch" (Mar.). Transeau: **Jasper,** Wheeler—Embarrass River 7 miles E. of (Sept.).

S. NARCISSIANA Trans. Transeau, Amer. Jour. Bot. 1: 290. pl. 25. f. 4–8 (1914).

Transeau 1913B, p. 76; 1914, p. 290; Collins 1918, p. 15: **Coles,** Charleston—pond (Sept., Oct.).

S. NEGLECTA (Hass.) Kuetz. Collins, Tufts Coll. Stud. 3(2): 73 (1912).

*Spirogyra ternata* Ripart.

Collins 1909, p. 114, as *S. ternata;* 1912, p. 73; Transeau 1913B, p. 76: **Clark,** Casey—ponds (July, Sept.). **Coles,** Charleston—Kickapoo Creek, ponds, and other small streams (Mar.–Nov.). Johnson & Atwell 1890, p. 20: **Cook**—"Big Ditch" (Apr.). Transeau: **Douglas,** Arthur—pond (July). Forbes & Richardson 1913, p. 506, as *S. ternata:* **Grundy,** Dresden Heights—DesPlaines River (Aug., Sept.). Transeau: **Moultrie,** Sullivan—pond (May, July). **Richland,** Olney—creek (Aug.).

S. NITIDA (Dillw.) Link. Collins, Tufts Coll. Stud. 2(3): 110 (1909). Transeau 1913B, p. 77; 1913C, p. 34; 1916, p. 124: **Clark,** Casey—ponds (July, Sept., Nov.). **Coles,** Charleston, Wrightsville—ponds (June–Oct.). Johnson & Atwell 1890, p. 20: **Cook,** Woodlawn; "Big Ditch" (Mar.–June). Transeau: **Jasper,** Wheeler—ponds (Aug.–Nov.). **Montgomery,** Hillsboro—Chautauqua Lake (July).

S. NOVAE-ANGLIAE Trans. Transeau, Ohio Jour. Sci. 16: 26 (1915). Transeau 1915, p. 26; Collins 1918, p. 15: **Montgomery,** Coffeen—prairie pond (June).

S. OCCIDENTALIS (Trans.) Czurda. Pascher, Suesswass.-fl. Mitteleur. 9: 183. f. 190 (1932).

*Spirogyra velata* var. *occidentalis* Trans.

Transeau 1914, p. 294, as *S. v.* var. *occidentalis:* **Clark,** Oilfield—pond (May). **Coles,** Lerna—stream and pond (May). **Lawrence,** Lawrenceville—gravel-pit (May).

S. PARVULA (Trans.) Czurda. Pascher, *loc. cit.*, p. 170. f. 174 (1932). *Spirogyra catenaeformis* var. *parvula* Trans.

Transeau 1914, p. 292; Collins 1918, p. 12, as *S. c.* var. *parvula:* **Clark,** Casey, Oilfield—ponds (Apr.). **Coles,** Ashmore, Charleston, Lerna—ponds (May, June). **Lawrence,** Lawrenceville—ditch (May).

S. PETITIANA Trans. Transeau *et al.*, Trans. Amer. Mic. Soc. 53: 225 (1934).

Transeau 1913B, p. 77: **Coles,** Charleston—pond ("summer").

S. PORTICALIS (Muell.) Cl. Collins, Tufts Coll. Stud. 2(3): 108 (1909).

Solheim & Penfound 1928, p. 88: **Champaign,** Urbana—small stream N. of (Mar.–May). Transeau 1913B, p. 77: **Clark,** Casey—pond (Apr., May). **Coles,** Ashmore, Charleston, Dorans, Loxa, Wrightsville—ponds, ditches, Embarrass River and small creeks (Oct.–May). **Cumberland,** Jewett—ponds S.W. of (May). **Douglas,** Arthur—ponds (May). **Edgar,** Paris—reservoir and ditch (Mar.). **Effingham,** Effingham—ponds (May). **Jasper,** Bogota—creek 6 miles S.W. of (Aug.). **Lawrence,** Lawrenceville—ditch (May), gravel-pit N.E. of (Apr.); Pinkstaff—pond (Mar.). **Montgomery,** Coffeen—pond (May). **Richland,** Olney—creek (Aug.).

S. PRATENSIS Trans. Transeau, Amer. Jour. Bot. 1: 292. pl. 25, 26. f. 12–14, 1, 2 (1914).

Transeau 1914, p. 292; Collins 1918, p. 15: **Clark,** Casey—ponds (May). **Coles,** Charleston—ponds and small streams (Apr.–July, Oct., Nov.). **Effingham,** Effingham—pool (May). **Montgomery,** Coffeen—pond (May).

S. PROPRIA Trans. Transeau, Ohio Jour. Sci. 16: 25 (1915).

Transeau 1915, p. 25; Collins 1918, p. 15: **Montgomery,** Coffeen.

S. PROTECTA Wood. Collins, Tufts Coll. Stud. 2(3): 118 (1909).

Transeau 1915, p. 29; 1916, p. 124: **Clark,** Casey—ponds and small stream (Apr., May); Martinsville—pond (Apr.). **Coles,** Ashmore, Charleston, Lerna—ponds, pools and small streams (Apr., May). **Cumberland,** Jewett—stream S.W. of (May). **Jasper,** Wheeler—pond (Mar.). **Lawrence,** Pinkstaff—spring-fed pond 3 miles E. of (July). **Richland,** Calhoun—pond (Apr.).

S. PUNCTIFORMIS Trans. Transeau, Amer. Jour. Bot. 1: 294. pl. 26. f. 7 (1914).

Transeau 1913B, p. 77; 1914, p. 294; Collins 1918, p. 15: **Coles,** Charleston—ponds (May, July).

S. QUADRATA (Hass.) Petit. Collins, Tufts Coll. Stud. 2(3): 116 (1909).

Transeau 1913B, p. 77: **Coles,** Charleston—pond (May, June). Johnson & Atwell 1890, p. 20: **Cook,** Woodlawn (Apr.).

S. RECTANGULARIS Trans. Transeau, Amer. Jour. Bot. 1: 291. pl. 25. f. 9–11 (1914).

Transeau 1914, p. 291; Collins 1918, p. 16: **Coles,** Ashmore, Charleston, Lerna—ponds (Apr., May).

S. REFLEXA Trans. Transeau, Ohio Jour. Sci. 16: 28 (1915).

Transeau 1915, p. 28; Collins 1918, p. 16: **Clark,** Casey, Oilfield—ponds (May). **Coles,** Lerna—ponds. **Montgomery,** Coffeen, Donnellson—ponds (May).

S. RETICULATA Nordst. Collins, Tufts Coll. Stud. 2(3): 17 (1909).

Transeau: **Coles,** Charleston, Lerna—ponds and pools (May). **Lawrence,** Lawrenceville—gravel pit (May).

S. RUGOSA (Trans.) Czurda. Pascher, Suesswass.-fl. Mitteleur. 9: 156 (1932).

*Spirogyra tenuissima* var. *rugosa* Trans.

Transeau 1913B, p. 77; 1914, p. 291; Collins 1918, p. 13, as *S. t.* var. *rugosa:* **Clark,** Casey—ponds (Apr.). **Coles,** Charleston, Dorans, Lerna, Wrightsville—small streams, ponds and ditches (Apr., May).

S. SCROBICULATA (Stockm.) Czurda. Pascher, *loc. cit.*, p. 182. f. 189.

*Spirogyra varians* var. *scrobiculata* Stockm.

Transeau 1915, p. 23; Collins 1918, p. 12, as *S. v.* var. *scrobiculata:* **Coles,** Charleston, Dorans—creek and pond (May). **Lawrence,** Pinkstaff—pond (Mar.).

S. SETIFORMIS (Roth) Kuetz. Collins, Tufts Coll. Stud. 2(3): 111 (1909).

Transeau 1913B, p. 77; 1913C, p. 34; 1916, p. 124: **Coles,** Ashmore, Charleston—ponds (all months). **Lawrence,** Pinkstaff—pond 3 miles E. of (Oct.).

S. SINGULARIS Nordst. DeToni, Sylloge Algarum 1(2): 770 (1889); Transeau MSS.

Britton: **Lake,** Everett—small pond about 1 mile S., Apr. 15, 1938, #71.

S. SPREEIANA Rab. Collins, Tufts Coll. Stud. 2(3): 116 (1909).

Transeau 1913B, p. 77: **Coles,** Ashmore, Charleston—ponds and small streams (Apr.–June, Dec.). Johnson & Atwell 1890, p. 20; Britton: **Cook,** Glenview—swamp and temporary pond about 1½ miles W. on Central Road, May 12, 1938, #56; Woodlawn—"Big Ditch" (Mar.–June). Transeau: **Lawrence,** Lawrenceville—gravel pit (Apr.).

S. SUBMAXIMA Trans. Transeau, Amer. Jour. Bot. 1: 295. pl. 27. f. 3, 4 (1914).

Transeau 1913B, p. 77; 1914, p. 295; 1915, p. 27; Collins 1918, p. 14: **Coles,** Ashmore, Charleston—ponds and bayou of Polecat Creek (Mar.–Jan.). **Douglas,** Arthur—pond (May).

S. TENUISSIMA (Hass.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 115 (1909).

Transeau 1913B, p. 77; 1916, p. 124: **Clark,** Casey—ponds and ditches (Apr., May, Nov.). **Coles,** Ashmore, Charleston, Dorans, Humboldt, Lerna—ponds, pools, ditches and small streams (Jan.–May, Nov.), laboratory aquaria (Mar.), on soil (May). Johnson & Atwell 1890, p. 20: **Cook,** Evanston—aquarium (Mar.). Transeau: **Cumberland,** Greenup—ditch (Nov.); Jewett—pond and stream S.W. of (May). **Edgar,** Paris—ditch (Mar.). **Effingham,** Effingham—pond and pool (Dec.). **Jasper,** Bogota—creek 6 miles S.W. of (Aug.); Wheeler—pond (Apr.). **Richland,** Calhoun—pond (Apr.).

S. TEODORESCI Trans. Transeau, Ohio Jour. Sci. 34: 420 (1934).
*Spirogira varians* var. *minor* Teodor.

Transeau 1915, p. 23; Collins 1918, p. 12, as *S. v.* var. *minor.*

S. TETRAPLA Trans. Transeau, Amer. Jour. Bot. 25: 528. f. 18–19 (1928).

Transeau 1938, p. 528. "Central Illinois" (Apr., May).

S. TRIPLICATA (Coll.) Trans. Collins, Tufts Coll. Stud. 2(3): 110 (1909); Transeau, MSS.
*Spirogyra decimina* var. *triplicata* Coll.

Transeau 1913B, p. 75: **Clark,** Casey—pond (Sept.). **Coles,** Charleston—ponds and small streams (Mar.–Jan.). **Effingham** Effingham—small stream (Aug., Dec.). Forbes & Richardson 1913, p. 535: **Marshall,** Henry—Illinois River. **Peoria,** Chillicothe—Illinois River.

S. VARIANS (Hass.) Kuetz. Collins, *loc. cit.*, p. 108 (1909).

Transeau 1913B, p. 78; 1913C, p. 33; 1916, p. 124: **Clark**—Whetstone Creek (June); Casey, Westfield—ponds (Apr., May). **Coles,** Ashmore, Charleston, Lerna, Loxa, Mattoon, Wrightsville—ponds, pools, springs, ditches, swamps, Embarrass River, Kickapoo Creek and other small streams (all months). Johnson & Atwell 1890, p. 20; Britton: **Cook,** Evanston, Hawthorne—ditches (Mar.–June); Niles—small shaded pond at Dempster Golf Club, May 10, 1938, #49; Woodlawn—ditches (Mar.–June). Transeau: **Cumberland,** Greenup—pond (Apr., May); Jewett—stream S.W. of (May). **Douglas,** Arthur—pond and drainage ditch (May). **Edgar,** Paris—reservoir (Mar., Apr.). **Effingham,** Effingham—pond (May). **Lawrence,** Lawrenceville—ditch (May); Pinkstaff—pond (Mar., Apr.). **Montgomery,** Coffeen—pond and streams (May). **Moultrie,** Sullivan—pond (July).

S. VELATA Nordst. Collins, Tufts Coll. Stud. 4(7): 14 (1918).

Transeau: **Coles,** Charleston, Lerna—small stream and pond (Apr.–June).

S. WABASHENSIS Tiff. Tiffany, Bot. Gaz. 83: 202. pl. 9. f. 1 (1927).

Tiffany 1927, p. 202: **White,** Brownsville—Railroad pool 3½ miles S. of (May).

S. WEBERI Kuetz. Collins, Tufts Coll. Stud. 2(3): 116 (1909).
Solheim & Penfound 1928, p. 88: **Champaign,** Urbana—small stream N. of (Mar.). Transeau 1913, p. 78; 1913C, p. 33: **Clark,** Casey—pond (Apr.). **Coles,** Ashmore—pond (May), Polecat Creek (Apr.); Charleston—ponds, ditches, Kickapoo Creek and other small streams (Nov.–July). **Edgar,** Paris—reservoir (Apr.). **Effingham,** Effingham—pond (May). **Montgomery,** Coffeen—stream (May).

## ZYGNEMA Agardh, 1824

Z. ADPECTINATUM Trans. Transeau *et al.*, Trans. Amer. Mic. Soc. 53: 209. pl. 17. f. 6 (1934).
Transeau 1934, p. 209.

Z. AZUREUM Taft. Trans. *et al.*, *loc. cit.*, p. 214. pl. 17. f. 3 (1934).
Transeau 1934, p. 214: **Coles,** Ashmore—(Apr.).

Z. CATENATUM Trans. Transeau *et al.*, *loc. cit.*, p. 213 (1934).
*Zygnema cruciatum* var. *coeruleum* Trans.
Transeau 1915, p. 22; Collins 1918, p. 8, as *Z. c.* var. *coeruleum;* Transeau *et al.* 1934, p. 213: **Clark,** Casey—pond.

Z. COLLINSIANUM Trans. Transeau, Amer. Jour. Bot. 1: 289. pl. 25. f. 1–3 (1914).
Transeau 1913B, p. 74; 1914, p. 289; Collins 1918, p. 8: **Clark,** Briscoe, Casey, Oilfield—ponds and ditches (Apr., May). **Cumberland,** Bradbury—pool (Apr.).

Z. CONSPICUUM (Hass.) Trans. Transeau *et al.*, Trans. Amer. Mic. Soc. 53: 208. pl. 17. f. 2 (1934).
*Zygnema pectinatum* var. *conspicuum* (Hass.) Kirch.
Transeau 1915, p. 21; Collins 1918, p. 7, as *Z. p.* var. *conspicuum;* Transeau *et al.* 1934, p. 208.

Z. CRUCIATUM (Vauch.) Ag. Collins, Tufts Coll. Stud. 2(3): 104 (1909).
Transeau 1915, p. 21: **Coles,** Charleston—ponds (Apr.–Nov.). Transeau: **Montgomery,** Coffeen—pond (May).

Z. CYLINDRICUM Trans. Transeau, Ohio Jour. Sci. 16: 22 (1915).
Transeau 1915, p. 22; Collins 1918, p. 8: **Coles,** Ashmore—pond (Apr.).

Z. DECUSSATUM (Vauch.) Trans. Transeau, Amer. Jour. Bot. 1: 290 (1914).
Transeau 1914, p. 290; Collins 1918, p. 8: **Clark,** Casey—pond (July); Oilfield—ditch (May). **Coles,** Ashmore, Charleston—ponds and pools (May–Nov.). **Douglas,** Arthur—pond (July). **Lawrence,** Lawrenceville—Beaver Ditch (Aug.). **Montgomery,** Coffeen—pond (May). **Moultrie,** Sullivan—pond (July).

Z. EXCRASSUM Trans. Transeau, *et al.*, Trans. Amer. Mic. Soc. 53: 209. pl. 27. f. 14 (1934).

*Zygnema pectinatum* var. *crassum* Trans.

Transeau 1915, p. 21; Collins 1918, p. 7, as *Z. p.* var. *crassum;* Transeau, *et al.* 1934, p. 209: **Clark,** Casey—pool (May).

Z. INSIGNE (Hass.) Kuetz. Collins, Tufts Coll. Stud. 2(3): 104 (1909).

Transeau 1913B, p. 74; 1916, p. 124: **Clark,** Casey—pond (Apr.). **Coles,** Ashmore, Charleston, Lerna—ponds, pools, ditches and small intermittent streams (Apr.–June), on soil (May). **Cumberland,** Greenup—pond (Apr.). **Douglas,** Arcola—ditch (May). Britton: **Lake,** Everett—small pond 1 mile S., May 15, 1938, #71.

Z. LEIOSPERMUM DeBary. Collins, *loc. cit.* (1909).

Transeau 1916, p. 124: **Coles,** Charleston—pools (May). Britton: **Lake,** Northbrook—small pond at Somme Forest Preserve, May 15, 1938, #68.

Z. NEOCRUCIATUM Trans. Transeau, *et al.*, Trans. Amer. Mic. Soc. 53: 212 (1934).

Transeau, *et al.* 1934, p. 212.

Z. NEOPECTINATUM Trans. Transeau, *et al.*, *loc. cit.*, p. 209. pl. 27. f. 7 (1934).

Transeau, *et al.* 1934, p. 209.

Z. PECTINATUM (Vauch.) Ag. Collins, Tufts Coll. Stud. 2(3): 103 (1909).

*Zygnema pectinatum* var. *anomalum* (Ralfs) Kirch.; *Z. pectinatum* var. *decussatum* (Vauch.) Kirch.

Transeau 1913B, p. 74, also as *Z. p.* var. *anomalum* and *decussatum;* 1913C, p. 40; 1915, p. 21; 1916, p. 125: **Clark,** Casey—pond (Apr., May). **Coles,** Ashmore, Charleston, Lerna—ponds, pools, ditches and small streams (all months), laboratory aquaria (July). **Jasper,** Newton—small stream (Apr.); Wheeler—pond (Apr., Aug.). **Lawrence,** Lawrenceville—ditch E. of (May). **Montgomery,** Coffeen—ponds (May, June).

Z. STELLINUM (Vauch.) Ag. Collins, *loc. cit.*, p. 104 (1909).

Transeau 1913B, p. 74; 1913C, p. 33; 1915, p. 22; 1916, p. 124: **Clark,** Casey—pond (Apr.); Oilfield—ditch (May). **Coles,** Ashmore, Charleston, Lerna—ponds, pools, ditches, bayous and small streams (Mar.–July), on soil (May), laboratory aquaria (Dec.). **Cumberland,** Greenup—ponds (Apr.), ditch pools (Nov.); Jewett—pond S.W. of (May). **Edgar,** Paris—reservoir, ditches and pools (Mar., Apr.). **Lawrence,** Lawrenceville—Beaver Ditch and gravel pit 5 miles N.E. of (Apr., Aug., Sept.); Pinkstaff—ponds E. of (Mar., Apr.). **Montgomery,** Waggoner—wet-weather pond (Dec.). **Richland,** Calhoun—pools and slough of Bonpas Creek (Apr.).

Z. STERILE Trans. Transeau, *et al.*, Trans. Amer. Mic. Soc. 53: 212 (1934).

Transeau, *et al.* 1934, p. 212.

Z. SUBCRUCIATUM Trans. Transeau, *et al.*, Trans. Amer. Mic. Soc. 53: 212 (1934).

Transeau, *et al.* 1934, p. 212. Britton: **Cook,** Glenview—swamp and temporary pond about 1½ miles W. on Central Road, May 12, 1938, #56.

Z. SUBTILE Kuetz. Czurda in Pascher, Suesswass.-fl. Mitteleur. 9: 126 (1932).

Transeau: **Cumberland,** Jewett—stream S. of (May).

Z. VAUCHERII Ag. Rabenhorst, Fl. Eur. Algar. 3: 250 (1868); Transeau, MSS.

Transeau: **Montgomery,** Coffeen—lake (June).

## ZYGNEMOPSIS (Skuja) Transeau, 1934

Z. DECUSSATA Trans. Transeau, *et al.*, Trans. Amer. Mic. Soc. 53: 214 (1934).

*Debarya decussata* Trans.

Transeau 1915, p. 19; 1916, p. 124; 1925, p. 197; Collins 1918, p. 19, as *Debarya decussata:* **Coles,** Charleston—ponds (Apr., May). **Montgomery,** Coffeen—pond (May).

## ZYGOGONIUM Kuetzing, 1843; DeBary, 1885

Z. ERICETORUM Kuetz. Transeau, Ohio Jour. Sci. 33: 158 (1933).

*Zygogonium decussatum* Kuetz.

Johnson & Atwell 1890, p. 20, as *Z. decussatum:* **Cook,** Evanston—aquarium (Mar.).

## Family: MESOTAENIACEAE

## GENICULARIA DeBary, 1858

G. SPIROTAENIA DeBary. West & West, Brit. Desmid. 1: 36. pl. 2, 5. f. 4–6, 3, 4 (1904).

Agersborg 1930, pp. 108, 113: **Macon,** Decatur—warm wastewater ditch (Dec.–Feb.).

## GONATOZYGON DeBary, 1856

G. BREBISSONII DeBary. West & West, *loc. cit.*, p. 31. pl. 1. f. 8–11 (1904).

Kofoid 1908, p. 61: **Mason,** Havana—Illinois River (Mar.).

NETRIUM Naegeli, 1849; Luetkemueller, 1902

N. DIGITUS (Ehr.) Itzigs. & Rothe. West & West, *loc. cit.*, p. 64. pl. 6. f. 14–16 (1904).

Transeau: **Clark,** Casey—pond (May). Britton: **McHenry,** Harvard—swamp about 2 miles N.E., July 8, 1939, #436. Eddy 1931B, pp. 451, 462: **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.).

ROYA W. & G. S. West, 1896; Hodgetts, 1920

R. OBTUSA (Breb.) W. & G. S. West. West & West, *loc. cit.*, p. 107. pl. 10. f. 27 (1904).

*Closterium obtusum* Breb.

Johnson & Atwell 1890, p. 20, as *Closterium obtusum:* **Cook,** Glencoe—(Apr.).

Family: DESMIDIACEAE

ARTHRODESMUS Ehrenberg, 1838

A. CONVERGENS Ehr. West & West, Brit. Desmid. 4: 106. pl. 116. f. 4–13 (1912).

Britton: **Cook,** Sag Bridge—small ponds, July 13, Sept. 8, 1939, #507, 997, 998; Schnells Corner—pond at Elk Grove Forest Preserve, June 22, 1939, #327. **Lake,** Volo—bog at Tamarack Farm, June 3, 1939, #294.

CLOSTERIUM Nitzsch, 1817

C. ACEROSUM (Schr.) Ehr. West & West, Brit. Desmid. 1: 146. pl. 18. f. 2–5 (1904).

Kofoid 1903, p. 516; 1908, pp. 11, 60, 292, 319 (Mason). Solheim & Penfound 1928, p. 88 (Champaign). Eddy 1931A, p. 486 (Macon, Menard); 1931B, pp. 451, 462 (Pulaski); 1934, pp. 385, 386, 389–391, 393, 394, 396, 399, 402, 403 (Adams, Alexander, Calhoun, Champaign, Hancock, Henry, Jersey, Macon, Madison, Mason, McHenry, Ogle, Piatt, Pike, St. Clair, Union, Whiteside). Transeau (Coles). Britton (Cook).

**Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun**—Mississippi River (June). **Champaign,** Urbana—Ox-bow pond (May–Aug.), small stream N. of (Apr.–June). **Coles,** Charleston—pond (Mar.). **Cook,** Morton Grove—small reservoir, May 10, 1938, #42. **Hancock**—Mississippi River (June). **Henry,** Colona—slough (June–Aug.). **Jersey**—Mississippi River (June). **Macon,** Decatur—park pond and Lake Decatur (Mar.–Dec.); Harristown—Sangamon River

(Sept.). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (all months); Topeka—Quiver Creek (Sept.–Nov.). **McHenry,** Algonquin—Fox River ("summer"). **Menard,** Petersburg—Sangamon River (Sept.). **Ogle,** Byron, Grand Detour—sloughs (June–Aug.). **Piatt,** Monticello—Sangamon River (May–Nov.). **Pike**—Mississippi River (June). **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.). **St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside,** Erie—Hatwood Slough (June–Aug.); Sterling—Rock River ("summer").

C. ACEROSUM var. ELONGATUM Breb. West & West, *loc. cit.*, p. 148. f. 1 (1904).

Britton 1940, p. 71: **Cook,** Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43.

C. ACUTUM Breb. West & West, *loc. cit.*, p. 177. pl. 23. f. 9–14 (1904).

Eddy 1931A, pp. 480, 483, 486: **Cass,** Chandlerville—Sangamon River (Sept.). **Macon**—Lake Decatur (June, Sept.); Harristown—Sangamon River (Sept.). **Menard,** Petersburg—Sangamon River (Sept.). **Piatt,** Monticello—Sangamon River (July). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (Sept.).

C. BRAUNII Reinsch. Krieger in Rab., Kryptog.-fl. Deutsch. 13(1): 343. pl. 30. f. 2 (1937).

Transeau: **Clark,** Casey—pond (May).

C. DIANAE Ehr. West & West, Brit. Desmid. 1: 130. pl. 15. f. 1–6 (1904).

Johnson & Atwell 1890, p. 20: **Cook**—"Big Woods" (Apr.).

C. DIDYMOTOCUM Ralfs. Krieger in Rab., Kryptog.-fl. Deutsch. 13(1): 325. pl. 26. f. 1–2 (1937).

Transeau: **Clark,** Casey—pond (May).

C. EHRENBERGII Menegh. West & West, Brit. Desmid. 1: 143. pl. 17. f. 1–4 (1904).

Transeau: **Coles,** Ashmore—pond (Nov.).

C. GRACILE Breb. West & West, *loc. cit.*, p. 166. pl. 21. f. 8–12 (1904).

Kofoid 1903, p. 516; 1908, pp. 61, 292, 319: **Mason,** Havana—Illinois River (Mar.–Dec.); Topeka—Quiver Creek (Dec., Jan.).

C. GRACILE var. ELONGATUM W. & G. S. West. West & West, *loc. cit.*, p. 168. f. 14–16 (1904).

Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole pond (Dec.).

C. INTERMEDIUM Ralfs. Krieger in Rab., Kryptog.-fl. Deutsch. 13: 335. pl. 28, 29. f. 5, 6, 8 (1937).

*Closterium striolatum* var. *intermedium* Ehr.; *C. subtruncatum* West & West.

Johnson & Atwell 1890, p. 20, as *C. s.* var. *intermedium:* **Cook**—

"Big Woods" (Apr.). Eddy 1931B, p. 462, as *C. subtruncatum:* **Pulaski,** Wetaug—sink-hole pond (Dec.).

C. JUNCIDUM var. BREVIOR Roy. West & West, Brit. Desmid. 1: 129. pl. 14. f. 15–16 (1904).

Transeau: **Clark,** Casey—pond (May).

C. LANCEOLATUM Kuetz. West & West, *loc. cit.*, 149. pl. 18. f. 7 (1904).

Britton 1940, p. 71: **Cook,** Morton Grove—small pond about 1 mile N.W., May 10, 1938, #43.

C. LEIBLEINII Kuetz. West & West, *loc. cit.*, p. 141. pl. 16. f. 9–14 (1904).

Transeau: **Coles,** Charleston—ponds (Jan., May).

C. LITTORALE Gay. West & West, *loc. cit.*, p. 155. pl. 19. f. 14 (1904).

Britton 1940, p. 71: **Cook,** Morton Grove—small greenhouse reservoir, May 10, 1938, #42.

C. LUNULA (Muell.) Nitz. West & West, *loc. cit.*, p. 150. pl. 18. f. 8–9 (1904).

Transeau: **Clark,** Casey—pond (May). **Coles,** Ashmore—pond (June). Kofoid 1903, p. 516; 1908, pp. 11, 61, 319: **Mason,** Havana—Illinois River (all months); Topeka—Quiver Creek (Apr., (Sept.–Nov.).

C. MONILIFERUM (Bory) Ehr. West & West, *loc. cit.*, p. 142. pl. 16. f. 15, 16 (1904).

Eddy 1931A, pp. 483, 486: **Cass,** Chandlerville—Sangamon River (July, Sept.). Solheim & Penfound 1928, p. 88; Eddy 1934, p. 387: **Champaign,** Mahomet—Sangamon River (Aug.); Urbana—small stream N. of (Apr.–Aug.). Transeau: **Clark,** Casey—small stream and pond (Apr., May). **Coles,** Ashmore, Charleston—ponds and small streams (May, July, Nov.). Johnson & Atwell 1890, p. 20; Eddy 1927B, pp. 215, 222: **Cook,** Chicago—Lake Michigan (July); Summerdale—roadside (July). Transeau: **Douglas,** Arthur—pond (May). Eddy, *loc. cit.* (1931A, 1934): **Macon,** Harristown—Sangamon River (Sept.). Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole ponds (Apr., Sept., Dec.).

C. PARVULUM Naeg. West & West, *loc. cit.*, 133. pl. 15. f. 9–12 (1904).

Transeau: **Coles,** Charleston—pond (May).

C. PRITCHARDIANUM Arch. West & West, *loc. cit.*, p. 172. pl. 22. f. 6–14 (1904).

Transeau: **Clark,** Casey—pond (May). **Coles,** Charleston—ponds (Jan.).

C. STRIGOSUM Breb. West & West, *loc. cit.*, p. 165. pl. 21. f. 6–7 (1904).

Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole pond (Dec.).

C. STRIOLATUM Ehr. Krieger in Rab., Kryptog-fl. Deutsch. 13 (1): 337. pl. 28. f. 8, 9; pl. 29. f. 9 (1937).

*Closterium striolatum* var. *elongatum* Rab.

Johnson & Atwell 1890, p. 20, as *C. s.* var. *elongatum:* **Cook**—"Big Ditch" (Mar.).

C. TURGIDUM Ehr. West & West, Brit. Desmid. 1: 170. pl. 22. f. 4–5 (1904).

Transeau: **Clark,** Casey—small stream and pond (Apr., May). **Coles,** Ashmore—pond (June).

C. VENUS Kuetz. West & West, *loc. cit.*, p. 137. pl. 15. f. 15–20 (1904).

Transeau: **Coles,** Ashmore—pond (Nov.). Johnson & Atwell 1890, p. 20: **Cook,** Evanston—ditch N. of town (Apr.). Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole pond (July).

## COSMARIUM Corda, 1834

C. BIRETUM var. TRIGIBBERUM Nordst. West & West, Brit. Desmid. 4: 28. pl. 101. f. 10–15 (1912).

Britton: **Cook,** Golf—small pond about 2 miles W., May 10, 1938, #52.

C. BOTRYTIS Menegh. West & West, *loc. cit.*, p. 1. pl. 96. f. 1, 2, 5–15 (1912).

Transeau: **Clark,** Casey—pond (Sept.). **Coles,** Charleston—ponds (May, July). Johnson & Atwell 1890, p. 20: **Cook**—"Big Woods" (Apr.). Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole pond (July, Sept.).

C. BROOMEI Thw. West & West, *loc. cit.*, p. 24. pl. 100. f. 12 (1912).

Johnson & Atwell 1890, p. 20: **Cook**—"Big Woods" (Apr.). Transeau: **Douglas,** Arthur—pond (May).

C. CONSTRICTUM Delp. Wolle, Desmids U. S., p. 63. pl. 61. f. 1–4 (1892).

Kofoid 1908, p. 61: **Mason,** Havana—Illinois River (Mar.–Sept.).

C. CRENATUM Ralfs. West & West, Brit. Desmid. 4: 35. pl. 98. f. 9–12 (1912).

Transeau: **Coles,** Charleston—ditches (Apr., May).

C. CUCUMIS (Corda) Ralfs. West & West, Brit. Desmid. 2: 152. pl. 59. f. 18–20 (1905).

Britton 1940, p. 71: **Cook,** Glenview—swamp and temporary pond about 1½ miles W., Apr. 7, 1938, #228.

C. CURTUM (Breb.) Ralfs. West & West, Brit. Desmid. 1: 97. pl. 10. f. 21, 22 (1904); 5: 267 (1923).

*Calocylindrus curtus* Kirch.

Johnson & Atwell 1890, p. 20, as *Calocylindrus curtus:* **Cook,** "Big Woods" (Apr.).

C. DENTATUM Wolle. Wolle, Desmids U. S., p. 83. pl. 16. f. 15 (1892).

Transeau: **Coles,** Ashmore—pond (June).

C. DEPRESSUM (Naeg.) Lund. West & West, Brit. Desmid. 2: 176. pl. 62. f. 2–5 (1905).

Eddy 1931B, pp. 456, 462: **Pulaski,** Wetaug—sink-hole pond (July).

C. FORMOSULUM Hoff. West & West, Brit. Desmid. 3: 240. pl. 88. f. 1–3 (1908).

Transeau: **Coles,** Ashmore—pond and ditches (May, June). **Douglas,** Arthur—pond (May).

C. FORMOSULUM var. NATHORSTII (Boldt) W. & G. S. West. West & West, *loc. cit.*, p. 242. f. 4–5 (1908).

Transeau: **Coles,** Charleston—pond (Apr.).

C. GRANATUM Breb. West & West, Brit. Desmid. 2: 186. pl. 63. f. 1–3 (1905).

Transeau: **Coles,** Ashmore—pond (June, Nov.). Britton: **Cook,** Sag Bridge—swamp, Sept. 8, 1939, #984.

C. HOLMIENSE Lund. West & West, Brit. Desmid. 3: 1. pl. 65. f. 1–2 (1908).

Transeau: **Coles,** Charleston—ditch (May).

C. HOLMIENSE var. INTEGRUM Lund. West & West, *loc. cit.*, p. 2. pl. 65. f. 3–5 (1908).

Transeau: **Coles,** Charleston—ditches (Apr., May).

C. MENEGHINII Breb. West & West, *loc. cit.*, p. 90. pl. 72. f. 29–32 (1908).

Britton: **McHenry,** Johnsburg—Fox River, about ½ mile below Pistakee Lake, July 25, 1939, #590.

C. MONILIFORME (Turp.) Ralfs. West & West, *loc. cit.*, p. 20. pl. 67. f. 1–3 (1908).

Britton: **Cook,** Northbrook—small pond in Somme Forest Preserve, July 3, 1939, #349.

C. NITIDULUM DeNot. West & West, Brit. Desmid. 2: 197. pl. 64. f. 1–3 (1905).

Johnson & Atwell 1890, p. 20: **Cook,** Evanston—aquarium (Mar.).

C. PACHYDERMUM var. AETHIOPICUM W. & G. S. West. West & West, *loc. cit.*, p. 140. pl. 57. f. 8–9 (1905).

Britton: **McHenry,** Harvard—swamp about 2 miles N.E., July 8, 1939, #436.

C. PERICYMATIUM Nordst. West & West, Brit. Desmid. 3: 34. pl. 68. f. 10 (1908).

Transeau: **Coles,** Charleston—ditches (May).

C. POLYGONUM (Naeg.) Arch. West & West, *loc. cit.*, p. 76. pl. 71. f. 32–34 (1908).

Johnson & Atwell 1890, p. 20: **Cook**—"Big Ditch" (Oct.).

C. PORRECTUM Nordst. DeToni, Sylloge Algarum 1(2): 987 (1889);

Johnson, Bull. Torr. Bot. Club 22: 293. pl. 240. f. 30 (1895).

Britton: **Cook,** Sag Bridge—swamp, July 13, 1939, #493, 496.

C. PROTRACTUM (Naeg.) DeBary. West & West, Brit. Desmid. 3: 181. pl. 82. f. 8; pl. 94, f. 4, 5 (1908).

Johnson & Atwell 1890, p. 20; Johnson 1894, p. 287: **Cook,** Evanston; Winnetka (Apr.).

C. PUNCTULATUM Breb. West & West, *loc. cit.*, p. 206. pl. 84. f. 13–14; pl. 102, f. 22 (1908).

Transeau: **Coles,** Ashmore—pond (Nov.).

C. QUADRUM Lund. West & West, Brit. Desmid. 4: 20. pl. 100. f. 3–6 (1912).

Transeau: **Coles,** Ashmore—pond (June).

C. QUINARIUM Lund. West & West, Brit. Desmid 3: 216. pl. 85. f. 9, 10 (1908).

Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole pond (July).

C. RECTANGULARE Grun. West & West, *loc. cit.*, p. 54. pl. 70. f. 1–2 (1908).

Britton: **Cook,** Sag Bridge—small shallow pond, July 13, 1939, #510.

C. RENIFORME (Ralfs) Arch. West & West, *loc. cit.*, p. 157. pl. 79. f. 1–2; pl. 82. f. 15 (1908).

Transeau: **Douglas,** Arthur—pond (May).

C. SEXANGULARE Lund. West & West, *loc. cit.*, p. 81. pl. 72. f. 3 (1908).

Transeau: **Douglas,** Arhtur—pond (May).

C. SEXANGULARE f. MINIMA Nordst. West & West, *loc. cit.*, p. 82. f. 4–5 (1908).

Britton 1940, p. 71: **Cook,** Morton Grove—small pond about 1 mile N.W., June 23, 1938, #77.

C. SPECIOSUM Lund. West & West, *loc. cit.*, p. 247. pl. 89. f. 1–3 (1908).

Transeau: **Coles,** Ashmore, Charleston—ditches and ponds (Apr., May).

C. SUBCOSTATUM Nordst. West & West, *loc. cit.*, p. 236. pl. 87. f. 3–5 (1908).

Transeau: **Clark,** Casey—pond (May). **Coles,** Ashmore—pond (Nov.).

C. SUBCRENATUM Hantz. West & West, *loc. cit.*, p. 228. pl. 86. f. 10–14 (1908).

Johnson & Atwell 1890, p. 20: **Cook**—"Big Woods" (Apr.).

C. SUBIMPRESSULUM Borge. West & West, Trans. Linn. Soc. Lond. 2nd Ser. 5: 247. pl. 15. f. 18 (1896).

Transeau: **Coles,** Ashmore—pond (June, Nov.).

C. SUPRASPECIOSUM Wolle. Wolle, Desmids U. S., p. 95. pl. 61. f. 5, 6 (1892).

Transeau: **Clark,** Casey—pond (May).

C. TRIPLICATUM Wolle. Wolle, *loc. cit.*, p. 79. pl. 22. f. 3–6 (1892).
Transeau: **Coles,** Ashmore, Charleston—ponds (June, Nov.).

C. TURPINII Breb. West & West, Brit. Desmid. 3: 189. pl. 82, 83. f. 16–17, 1 (1908).
Transeau: **Coles,** Ashmore—small stream and pond (May, Nov.).

## COSMOCLADIUM Brebisson, 1856

C. SAXONICUM DeBary. West & West, Brit. Desmid. 5: 202. pl. 158. f. 13–16 (1923).
Kofoid 1908, pp. 60, 61: **Mason,** Havana—Illinois River (Aug., Sept.).

## DESMIDIUM Agardh, 1825

D. APTOGONUM Breb. West & West, *loc. cit.*, p. 242. pl. 164. f. 1–3 (1923).
Britton: **Lake,** Waukegan—in Dead River at Dunes Park, May 11, 1939, #255.

D. GREVILLEI DeBary. Smith, Bull. Wis. Geol. & Nat. Hist. Surv. 57 (2): 145. pl. 88. f. 8 (1924).
Britton: **McHenry:** Greenwood—swamp in Game Preserve about 1½ miles N.W., July 6, 1939, #396, 397; Ringwood—small pond about 1 mile N.W., July 6, 1939, #398.

D. SWARTZII Ag. West & West, Brit. Desmid. 5: 246. pl. 163. f. 5–8 (1923).
Transeau 1916, p. 125: **Clark,** Casey—pond (May). **Coles,** Ashmore, Charleston—small stream and ponds (May–July, Nov.).
Britton: **Cook,** Argonne Forest Preserve—Maple Lake, July 13, 1939, #493; Palos Park—small pond, July 14, 1939, #578; Sag Bridge—ponds and swamps, July 13, Sept. 8, 1939, #505, 529, 996, 998, 1021; Schnells Corner—ponds at Elk Grove Forest Preserve, Aug. 8, 1939, #780, 786, 790, 791. **Lake,** Volo—bog at Tamarack Farm, June 3, 1939, #294.

## EUASTRUM Ehrenberg, 1832; Ralfs, 1844

E. JOHNSONII West & West. Krieger in Rab., Kryptog.-fl. Deutsch. 13 (1): 542. pl. 73. f. 20–21 (1937).
Transeau: **Clark,** Casey—pond (May).

E. OBLONGUM (Grev.) Ralfs. West & West, Brit. Desmid. 2: 12. pl. 34, 35. f. 7–9, 2 (1905).
Britton: **Lake,** Volo—bog at Tamarack Farm, June 3, 1939, #294.

E. PULCHELLUM Breb. West & West, *loc. cit.*, p. 46. pl. 38. f. 14–15 (1905).
Transeau: **Coles,** Ashmore—pond (June).

## HYALOTHECA Ehrenberg, 1841

H. DISSILIENS (Smith) Breb. West & West, Brit. Desmid. 5: 229. pl. 161. f. 16–27 (1923).

Transeau 1916, p. 125: **Coles,** Ashmore, Charleston—small stream from pond and ponds (May–July, Nov.). Britton: **Cook,** Evanston—North Shore Channel at Simpson St., June 22, 1939, #304; Palos Park—small pond, July 14, 1939, #578; Schnells Corner—pond at Elk Grove Forest Preserve, June 23, 1938, Aug. 8, 1939, #93, 790. Transeau: **Jasper,** Wheeler—pond (Sept.). Britton: **Lake,** Volo—bog at Tamarack Farm, June 3, 1939, #293, 294; Wauconda—Bangs Lake, Aug. 24, 1939, #920.

H. MUCOSA (Mert.) Ehr. West & West, *loc. cit.*, p. 235. pl. 162. f. 1–4 (1923).

Britton: **Cook,** Sag Bridge—swamp, July 13, 1939, #495.

## MICRASTERIAS Agardh, 1827

M. AMERICANA (Ehr.) Ralfs. West & West, Brit. Desmid. 2: 117. pl. 53, 54. f. 4, 5, 1–3 (1905).

Transeau: **Clark,** Casey—stream (Apr.). **Coles,** Ashmore, Charleston—ponds and small stream (May, June, Nov.). Britton: **Cook,** Sag Bridge—small pond, July 13, 1939, #505. Transeau: **Douglas,** Arthur—pond (May). Eddy 1931B, pp. 451, 462: **Pulaski,** Wetaug—sink-hole ponds (Apr.).

M. ROTATA (Grev.) Ralfs. West & West, *loc. cit.*, p. 102. pl. 48. f. 1–6 (1905).

Britton: **Lake,** Volo—bog at Tamarack Farm, June 3, 1939, #293, 294.

M. TRUNCATA (Corda) Breb. West & West, *loc. cit.*, p. 82. pl. 42, 45. f. 1–8, 5, 6 (1905).

Transeau: **Coles,** Ashmore, Charleston—ponds (June, Nov.). Britton: **Lake,** Volo—bog at Tamarack Farm, June 3, 1939, #293. **McHenry,** Harvard—swamps about 2 miles E., July 7, 1939, #420; Woodstock—small pond about 1 mile S.E., July 8, 1939, #434.

## ONYCHONEMA Wallich, 1860

O. LAEVE var. LATUM W. & G. S. West. Smith, Bull. Wis. Geol. & Nat. Hist. Surv. 57 (2): 136. pl. 86. f. 15 (1924).

Britton: **Cook,** Sag Bridge—small pond, Sept. 8, 1939, #996, 998.

## PENIUM Brebisson, 1844

P. MARGARITACEUM (Ehr.) Breb. West & West, Brit. Desmid. 1: 83. pl. 8. f. 32–35 (1904).

Transeau: **Clark,** Casey—pond (May). Johnson & Atwell 1890, p. 20: **Cook,** Winnetka—(Apr.).

## PLEUROTAENIUM Naegeli, 1849

P. CORONATUM (Breb.) Rab. West & West, *loc. cit.*, p. 199. pl. 18. f. 4 (1904).

Transeau: **Coles,** Ashmore—pond (June).

P. EHRENBERGII (Breb.) DeBary. West & West, *loc. cit.*, p. 205. pl. 30 f. 1 (1904).

Transeau: **Clark,** Casey—pond (May).

P. TRABECULA (Ehr.) Naeg. West & West, *loc. cit.*, p. 209. pl. 30. f. 11–13 (1904).

*Docidium trabecula* Naeg.

Transeau: **Coles,** Ashmore—pond (June, Nov.). Johnson & Atwell 1890, p. 20, as *Docidium trabecula:* **Cook**—"Big Woods" (Apr.).

## SPONDYLOSIUM Brebisson, 1844

S. PLANUM (Wolle) W. & G. S. West. West & West, Brit. Desmid. 5: 222. pl. 160. f. 23–25 (1923).

Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole pond (Apr.).

S. PYGMAEUM (Cooke) W. West. West & West, *loc. cit.*, p. 220. pl. 160. f. 18–19 (1923).

Daily 1938, p. 80: **Cook,** Evanston—Lake Michigan.

## STAURASTRUM Meyen, 1829

S. ALTERNANS Breb. West & West, Brit. Desmid. 4: 126. f. 8–9 (1912).

Transeau: **Clark,** Casey—pond (May).

S. CRENATUM Bail. Wolle, Desmids U. S., p. 138. f. 5–6 (1892).

Transeau: **Coles,** Ashmore—pond (Nov.).

S. CUSPIDATUM Breb. West & West, Brit. Desmid. 5: 23. pl. 132. f. 13–15 (1923).

Jelliffe 1893, p. 310: **Cook,** Chicago—Lake Michigan. Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole pond (Dec.).

S. DILATATUM Ehr. West & West, Brit. Desmid. 4: 172. pl. 126. f. 10–15 (1912).

Transeau: **Clark,** Casey—pond (May). **Coles,** Ashmore—pond (June, Nov.). Johnson & Atwell 1890, p. 20: **Cook**—"Big Ditch" (Oct.).

S. GRACILE Ralfs. West & West, Brit. Desmid. 5: 96. pl. 144. f. 3–7 (1923).

Galtsoff 1924, pp. 399, 404: **Carroll**—Mississippi River (July). Transeau: **Coles,** Charleston—pond (July). Galtsoff, *loc. cit.:* **Henderson, Jo Daviess**—Mississippi River (Aug., July). Kofoid 1908, pp. 60, 61, 319: **Mason,** Havana—Illinois River (all

months). Galtsoff, *loc. cit.:* **Mercer**—Mississippi River (Aug.). Eddy 1931B, p. 462: **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept.). Galtsoff, *loc. cit.:* **Rock Island, Whiteside**—Mississippi River (July, Aug.).

S. HEXACERUM (Ehr.) Wittr. West & West, *loc. cit.*, p. 138. pl. 142. f. 11–14 (1923).

Transeau: **Clark,** Casey—pond (May). **Coles,** Ashmore—pond (Nov.).

S. MARGARITACEUM (Ehr.) Menegh. West & West, *loc. cit.*, p. 131. pl. 150. f. 5–9 (1923).

Transeau: **Coles,** Ashmore—pond (Nov.).

S. OXYACANTHUM Arch. West & West, *loc. cit.*, p. 169, pl. 143. f. 18, 19 (1923).

Transeau: **Coles,** Ashmore—pond (Nov.).

S. POLYMORPHUM Breb. West & West, *loc. cit.*, p. 125. pl. 142, 143. f. 24, 1–3 (1923).

Transeau: **Clark,** Casey—stream (Apr.).

S. PUNCTULATUM Breb. West & West, Brit. Desmid. 4: 179. pl. 127. f. 8–11, 13, 14 (1912).

Transeau: **Clark,** Casey—stream (Apr.). **Coles,** Ashmore—pond (Nov.); Charleston—ditch (May). Johnson & Atwell 1890, p. 20: **Cook**—"Big Woods" (Apr.).

Phylum: PYRROPHYTA
Class: DINOPHYCEAE
Subclass: DINOFLAGELLATAE
Order: PERIDINIALES
Family: GLENODINIACEAE

## GLENODINIUM Stein, 1883

G. CINCTUM Ehr. Schilling in Pascher, Suesswass.-fl. Deutsch. 3: 23. f. 23 (1913).

Kofoid 1908, pp. 68, 82, 292, 322: **Mason,** Havana—Illinois River (Dec.–Sept.). Eddy 1930, p. 282: "plankton . . . from ponds in . . . Illinois."

G. GYMNODINIUM Penard. Schiller in Rab., Kryptog.-fl. Deutsch. 10 (3): 118. f. 116a–l (1937).

Eddy 1930, p. 284: **Whiteside**—Rock River.

G. PALUSTRE (Lemm.) Schill. Schiller, *loc. cit.*, p. 99. f. 87a–c (1937). *Gonyaulax palustre* Lemm.

Eddy 1930, p. 288, as *Gonyaulax palustre:* **Co. ?**—"plankton from shallow lakes of central Illinois."

G. QUADRIDENS (Stein) Schill. Schiller, *loc. cit.*, p. 117. f. 115a–m (1937).

*Peridinium cunningtonii* (Lemm.) Lemm.; *P. quadridens* Stein.

Eddy 1930, pp. 292, 297, as *Peridinium cunningtonii* and *P. quadridens:* Illinois-Mississippi Canal; "several lakes in central Illinois."

## Family: PERIDINIACEAE

### PERIDINIUM Ehrenberg, 1832

P. BIPES Stein. Schiller, *loc. cit.*, p. 159. f. 157a–i (1937).

*Peridinium tabulatum* (Ehr.) Clap. & Lachm.

Eddy 1934, pp. 396, 397, as *P. tabulatum:* **Champaign,** Seymour —temporary pond (Feb.–May, Oct.); Urbana—ox-bow pond (Feb.–Apr.). Jelliffe 1893, p. 311; Eddy 1927B, pp. 209, 225, as *P. tabulatum:* **Cook,** Chicago—Lake Michigan (Aug.). Hempel 1896, p. 310; 1898, p. 329, as *P. tabulatum:* **Fulton**—Thompson's Lake (July, Aug.). Hempel, *loc. cit.* (1896, 1898); Kofoid 1908, pp. 68, 84, 323, as *P. tabulatum:* **Mason,** Havana—Illinois River (all months); Matanzas Lake (July, Aug.). Kofoid 1899, p. 421; 1900, p. 543, as *P. tabulatum:* **Co. ?**—"almost always represented." Eddy 1930, p. 298, as *P. tabulatum:* **Co. ?**—"ponds and streams."

P. CINCTUM (Muell.) Ehr. Schiller, *loc. cit.*, p. 152. f. 152a–k (1937).

Eddy 1931B, pp. 453, 455, 464: **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.). Eddy 1930, p. 292: **Whiteside**—Rock River. **Co. ?**—cypress swamps along the Ohio River.

P. INCONSPICUUM Lemm. Schiller, *loc. cit.*, p. 173. f. 175a–w, z (1937).

Eddy 1930, p. 295: **Henry (?)**—Illinois-Mississippi Canal.

P. PUSILLUM (Penard) Lemm. Schiller, *loc. cit.*, p. 175. f. 177a–f (1937).

Eddy 1930, p. 297: **Co. ?**—"in limestone sinks in southern Illinois."

P. UMBONATUM Stein. Schiller, *loc. cit.*, p. 171. f. 174a–l (1937).

Eddy 1930, p. 299: **Henry,** Colona—in Hennepin (Illinois-Mississippi) Canal. **Whiteside,** Sterling—in Rock River.

## Family: HETERODINIACEAE

### CERATIUM Schrank, 1793

C. CORNUTUM (Ehr.) Clap. & Lachm. Schiller, *loc. cit.*, p. 363. f. 399 (1937).

Kofoid 1908, p. 72: **Mason,** Havana—Illinois River (June).

C. HIRUNDINELLA (O. F. M.) Schr. Schiller, *loc. cit.*, p. 359. f. 393–397 (1937).

*Ceratium kumaonense* Carter.

Hempel 1898, p. 330 (Fulton, Mason). Kofoid 1899, p. 421; 1900,

p. 543, as *C. kumaonense* (Champaign); 1908, p. 72 (Mason). Transeau 1913B, p. 73 ("common in ponds of eastern Illinois"). Galtsoff 1924, p. 399 (Carroll, Hancock, Jo Daviess, Rock Island, Whiteside). Eddy 1927B, pp. 209, 225 (Cook); 1931A, pp. 473, 479, 481, 484 (Cass, Macon, Piatt, Sangamon); 1931B, pp. 455, 464 (Pulaski); 1934, pp. 385, 386, 388–392, 394, 399, 400, 402, 403 (Adams, Alexander, Calhoun, Hancock, Henry, Jersey, Lake, Macon, Madison, Mason, McHenry, Ogle, Piatt, Pike, St. Clair, Union, Whiteside). Daily 1938, p. 80 (Cook). Britton (Cook, Lake, McHenry).

**Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun, Carroll**—Mississippi River (June–Sept.). **Cass,** Chandlerville—Sangamon River (June, July). **Champaign,** Urbana—Salt Fork. **Cook,** Argonne Forest Preserve—Maple Lake, July 13, Sept. 8, 1939, #487, 986, 991, Tuma Lake, July 14, 1939, #555; Chicago, Evanston—Lake Michigan (May, Aug., Sept.); Glenview—small pond in Ridgewood Cemetery, July 12, 1939, #460; Palos Park—Calumet Sag Channel at Kean Ave., July 14, 1939, #559; pond at Palos Golf Club, July 13, Sept. 8, 1939, #504, 505, 1000; Sag Bridge—small ponds on Archer Ave. and on McCarthy Road W. of Bell Road, and quarry pond on Route 4A, Sept. 8, 1939, #998, 1007, 1011, 1014, 1015. **Fulton**—Thompson's Lake (Aug., Sept.). **Hancock**—Mississippi River (June–Sept.). **Henry,** Colona—slough (June–Aug.). **Jersey, Jo Daviess**—Mississippi River (June–Sept.). **Lake,** Antioch—Grass, Marie, Channel, Catherine and Bluff Lakes and connecting channels, Sept. 14, 1939, #1028, 1032, 1033, 1035, 1040, 1048; Fox Lake—in Nippersink Lake and Creek, July 25, 1939, #594, 601, 602, Fox Lake, July 25, Aug. 25, 1939, #604, 605, 950–953; Halfday—pond 2 miles N.E., Aug. 8, 1939, #775; Klondike—Grass Lake, Petite Lake and connecting channels, Aug. 25, 1939, #942, 943, 945, 955, 958, 969, 971; Lake Villa—Sand Lake ("summer"); Lake Zurich—in Lake Zurich, Aug. 24, 1939, #914, 915; Long Lake—in Long Lake ("summer"); Volo—Fish Lake, Aug. 24, 1939, #935; Wauconda—Bangs and Slocum Lakes, Aug. 24, 1939, #920, 926. **Macon,** Decatur—Lake Decatur (Apr.–Nov.), park pond (July–Oct.); Harristown—Sangamon River (July). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (Apr.–Oct.), Thompsons Lake (Aug., Sept.). **McHenry,** Algonquin—Fox River; Greenwood—Nippersink Creek and tributaries, July 6, 7, 1939, #364, 432; Wonder Lake, July 6, 1939, #368; Johnsburg—Fox River below Pistakee Lake, July 25, Aug. 2, 1939, Pistakee Lake, Aug. 2, 1939, #591, 592, 595; McHenry—small pond 1 mile N.W. of

McCullom Lake, July 6, 1939, #390; Richmond—Twin Lakes (Lake Elizabeth), Aug. 2, 1939, #729; Woodstock—small pond about 1 mile E., July 7, 1939, #424. **Ogle,** Byron—slough (June–Aug.). **Piatt,** Monticello—Sangamon River (Mar., July, Sept.). **Pike**—Mississippi River (June). **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.). **Rock Island**—Mississippi River (July, Sept.). **Sangamon,** Illiopolis, Riverton—Sangamon River (July). **St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside**—Mississippi River (July, Sept.); Erie—Hatwood Slough (June–Aug.).

Phylum: EUGLENOPHYTA
Class: EUGLENOPHYCEAE
Order: EUGLENALES
Family: EUGLENACEAE

EUGLENA Ehrenberg, 1838

E. ACUS Ehr. Walton, Ohio Biol. Surv. 19: 371. pl. 14. f. 8 (1915). Forbes 1883B, p. 77 (Tazewell); 1888B, p. 534; Hempel 1898, p. 324 (Fulton, Mason). Kofoid 1903, p. 225; 1908, pp. 80, 292, 321 (Mason). Galtsoff 1924, pp. 399, 402, 405 (Carroll, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Agersborg 1930, pp. 108, 113 (Macon). Eddy 1931A, p. 479 (Cass); 1931B, p. 463 (Pulaski); 1934, pp. 385, 386, 390, 399, 403 (Adams, Alexander, Calhoun, Hancock, Jersey, Macon, Madison, Mason, Ogle, Pike, St. Clair, Union, Whiteside). Britton (Cook).

**Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun, Carroll**—Mississippi River (June, Sept.). **Cass,** Chandlerville—Sangamon River (June). **Cook,** Sag Bridge—small pond E. of Archer Ave. on McCarthy Road, Sept. 8, 1939, #1014. **Fulton**—Illinois River and adjacent waters (July–Sept.). **Hancock**—Mississippi River (June); Lake Keokuk (July). **Henderson, Jersey, Jo Daviess**—Mississippi River (June–Sept.). **Macon,** Decatur—Lake Decatur (June–Nov.); warm waste-water ditch (Dec.–Feb.). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River and adjacent waters (July–Sept.). **Mercer,** New Boston—Mississippi River (July). **Ogle,** Byron—slough (June–Aug.). **Pike**—Mississippi River (June). **Pulaski,** Wetaug—sink-hole pond (Sept.). **Rock Island, St. Clair**—Mississippi River (June–Sept.). **Tazewell**—Mackinaw River (Aug.). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside,** Erie—Hatwood Slough (June–Aug.); Rock River; Mississippi River (Sept.).

E. ACUTISSIMA Lemm. Walton, *loc. cit.*, p. 372. f. 10 (1915).
Eddy 1931A, pp. 481, 484; 1934, p. 388: **Cass,** Chandlerville—Sangamon River (July). **Macon**—Lake Decatur (July–Nov.). **Menard,** Petersburg—Sangamon River (Sept.). **Sangamon,** Illiopolis, Riverton—Sangamon River (Sept.).

E. DESES Ehr. Walton, *loc. cit.*, p. 369. f. 1 (1915).
Transeau 1913B, p. 72: **Coles,** Charleston—ponds and small streams (Mar.). Kofoid 1903, p. 225; 1908, p. 81: **Fulton, Mason,** Havana—Illinois River and backwaters ("summer"). Purdy 1930, pp. 68, 132: **Peoria,** Peoria—Illinois River (July, Aug.). **Will,** Lockport—DesPlaines River (Oct.).

E. ELONGATA Schew. Walton, *loc. cit.*, p. 363. pl. 12. f. 5 (1915).
Kofoid 1908, p. 81: **Mason,** Havana—Illinois River (July–Oct.).

E. GENICULATA Duj. Walton, *loc. cit.*, p. 362. f. 2 (1915).
Baker 1922, pp. 80, 82–87: **Champaign,** Urbana—Boneyard Creek, Salt Fork and Spoon River.

E. GRACILIS Klebs. Walton, *loc. cit.*, p. 368. pl. 13. f. 9 (1915).
Kofoid 1903, p. 225: **Fulton, Mason,** Havana—Illinois River and backwaters.

E. OBLONGA Schmitz. Walton, *loc. cit.*, p. 363. pl. 12. f. 4 (1915).
Transeau 1913B, p. 72: **Coles,** Ashmore—ice pond (Oct.).

E. OXYURIS Schmarda. Walton, *loc. cit.*, p. 369. pl. 14. f. 4 (1915).
Hempel 1898, p. 324; Kofoid 1908, pp. 81, 292, 321 (Mason). Purdy 1930, pp. 71, 117, 132, 133, 135, 147, 159, 169 (Calhoun, Fulton, Mason, Peoria, Will). Eddy 1931A, pp. 479, 481, 484 (Cass, Macon, Menard, Sangamon); 1931B, p. 463 (Pulaski); 1934, pp. 385–391, 393, 399, 402, 403 (Adams, Alexander, Calhoun, Champaign, Hancock, Henry, Jersey, Macon, Madison, Mason, Ogle, Piatt, Pike, St. Clair, Union, Whiteside).
**Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun**—Mississippi River (June); Kampsville—Illinois River (June–Aug.). **Cass,** Chandlerville—Sangamon River (July). **Champaign,** Mahomet—Sangamon River (July, Sept., Nov.). **Fulton**—Spoon River (June–Aug.). **Hancock**—Mississippi River (June). **Henry,** Colona—slough (June–Aug.). **Jersey**—Mississippi River (June). **Macon,** Decatur, Harristown—Lake Decatur, Sangamon River (June–Nov.). **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (Mar.–Nov.). **Menard,** Petersburg—Sangamon River (June, Sept.). **Ogle,** Grand Detour—slough (June–Aug.). **Peoria,** Chillicothe, Peoria—Illinois River (June–Nov.). **Piatt,** Monticello—Sangamon River (May). **Pike**—Mississippi River (June). **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept.). **Sangamon,** Illiopolis, Riverton—Sangamon River (June–Sept.). **St.**

**Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside,** Erie—Rock River and sloughs (June–Aug.). **Will,** Lockport—DesPlaines River (May).

E. SANGUINEA Ehr. Walton, *loc. cit.*, p. 364. pl. 12. f. 10 (1915). Transeau 1913B, p. 73: **Coles,** Ashmore, Charleston—ponds and pools (June, July, Oct.). Kofoid 1903, pp. 225, 513; 1908, p. 81: **Fulton, Mason,** Havana—Illinois River, backwaters and seepage pools ("summer"). Eddy 1931B, pp. 455, 456: **Pulaski,** Wetaug—sink-hole ponds (July, Sept.).

E. SPIROGYRA Ehr. Walton, *loc. cit.*, p. 372. pl. 15. f. 1 (1915). Hempel 1898, p. 324 (Fulton). Kofoid 1903, p. 225; 1908, p. 81 (Fulton, Mason). Transeau 1913B, p. 73 (Coles). Galtsoff 1924, pp. 399, 401, 402, 405 (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Purdy 1930, p. 132 (Peoria). Eddy 1931B, p. 456 (Pulaski); 1934, p. 396 (Champaign). Britton (Cook).

**Carroll**—Mississippi River (July). **Champaign,** Urbana—ox-bow pond (Feb.–Aug.). **Coles,** Charleston—ponds and small streams (Oct.–Mar.). **Cook,** Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452. **Fulton**—Illinois River and backwaters, Phelp's Lake (July). **Hancock**—Lake Keokuk (July). **Henderson, Jo Daviess**—Mississippi River (July). **Mason,** Havana—Illinois River (Oct.). **Mercer,** New Boston—Edwards and Mississippi Rivers (July). **Peoria,** Peoria—Illinois River (July). **Pulaski,** Wetaug—sink-hole pond (July). **Rock Island, Whiteside**—Mississippi River (July).

E. SPIROIDES Lemm. Walton, *loc. cit.*, p. 369. pl. 14. f. 3 (1915). Eddy 1934, p. 397: **Champaign,** Seymour—temporary pond (Apr.–July).

E. TORTA Stokes. Walton, *loc. cit.*, p. 368. pl. 13. f. 10 (1915). Hempel 1898, p. 324: **Fulton**—Phelp's Lake (July).

E. TRIPTERIS (Duj.) Klebs. Walton, *loc. cit.*, p. 371. pl. 14. f. 7 (1915). Eddy 1931B, p. 463: **Pulaski,** Wetaug—sink-hole pond (July).

E. VIRIDIS Ehr. Walton, *loc. cit.*, p. 361. pl. 12. f. 1 (1915). Forbes 1883, p. 77 (Tazewell); 1888B, p. 534; Garman 1890, p. 184 (Adams). Johnson & Atwell 1890, p. 19 (Cook). Jelliffe 1893, p. 311 (Cook). Hempel 1898, p. 324 (Fulton, Mason). Kofoid 1903, pp. 225, 513; 1908, pp. 67, 81, 292, 322 (Fulton, Mason). Transeau 1913B, p. 73 (Coles). Adcock 1922, p. 190 (Knox). Agersborg 1930, pp. 108, 109, 110, 113 (Macon). Purdy 1930, pp. 63, 85, 88, 89, 101, 105, 107, 109, 112, 117, 120, 121, 124, 126, 132–135, 143, 144, 146, 147, 154, 156, 159, 169, 170 (Calhoun, Fulton, Grundy, LaSalle, Marshall, Mason, Peoria, Will). Eddy 1931A, pp. 474, 479, 481, 484 (Cass, Macon, Menard, Piatt,

Sangamon); 1931B, pp. 456, 463 (Pulaski); 1934, pp. 385, 388–397, 399, 402, 403 (Adams, Alexander, Champaign, Calhoun, Hancock, Henry, Jersey, Macon, Madison, Ogle, Piatt, Pike, St. Clair, Union, Whiteside).

**Adams**—Mississippi River (June); Quincy—Quincy Bay (Aug.). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun**—Mississippi River (June); Kampsville—Illinois River (June–Nov.). **Cass,** Chandlerville—Sangamon River (June–Sept.). **Champaign,** Mahomet—Sangamon River (July–Aug.); Seymour—temporary pond (Apr.–July); Urbana—ponds (Apr.–Aug.). **Coles,** Charleston—ponds, pools and streams (all months). **Cook,** Chicago—Lake Michigan; Evanston—small stream and ditches ("spring and autumn"). **Fulton**—Illinois River and adjacent lakes (May–Dec.); Spoon River (June–Nov.). **Grundy,** Morris—Illinois River (June–Aug.). **Hancock**—Mississippi River (June). **Henry,** Colona—slough (June–Aug.). **Jersey**—Mississippi River (June). **Knox,** Galesburg—Lake Knox. **LaSalle,** LaSalle—Illinois River (June–Nov.). **Macon,** Decatur—Park pond (Feb.–Oct., Dec.); Lake Decatur (all months); warm waste-water ditch (Dec., Feb.). Harristown—Sangamon River (June–Sept.). **Madison**—Mississippi River (June). **Marshall,** Henry—Illinois River (Mar.–Aug.). **Mason,** Havana—Illinois River, lakes and seepage pools (Mar.–Dec.). **Menard,** Petersburg—Sangamon River (June–Sept.). **Ogle,** Byron—slough (June–Aug.); Grand Detour—slough (June–Aug.). **Peoria,** Chillicothe, Peoria—Illinois River (all months). **Piatt,** Monticello—Sangamon River (Mar.–Nov.). **Pike**—Mississippi River (June). **Pulaski,** Wetaug—sink-hole ponds (July, Sept., Dec.). **St. Clair**—Mississippi River (June). **Tazewell**—Mackinaw River (Aug.). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside,** Erie—Rock River and Hatwood sloughs (June–Aug.). **Will,** Joliet—DesPlaines River (Mar.–Oct.); Lockport—Chicago Drainage Canal and DesPlaines River ("spring and summer").

### LEPOCINCLIS Perty, 1849

L. OVUM (Ehr.) Lemm. Walton, *loc. cit.*, p. 375. pl. 15. f. 6 (1915). Kofoid 1908, pp. 82, 292, 322: **Mason,** Havana—Illinois River (Jan., Apr.–Nov.).

### PHACUS Dujardin, 1841

P. ACUMINATA Stokes. Walton, *loc. cit.*, p. 381. pl. 17. f. 4 (1915). Eddy 1931A, p. 484: **Macon,** Harristown—Sangamon River (Sept.). **Menard,** Petersburg—Sangamon River (Sept.). Eddy 1934, p. 393: **Piatt,** Monticello—Sangamon River (May, Aug.–

Oct.). Eddy 1931B, p. 463: **Pulaski,** Wetaug—sink-hole pond (July, Sept.).

P. LONGICAUDA (Ehr.) Duj. Walton, *loc. cit.*, f. 2 (1915). Hempel 1898, p. 326; Kofoid 1903, p. 516; 1908, pp. 85, 292, 323 (Mason); Transeau 1913B, p. 73 (Coles). Galtsoff 1924, pp. 399, 404 (Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island, Whiteside). Eddy 1931A, pp. 479, 481, 484 (Cass, Macon, Menard, Sangamon); 1931B, p. 463 (Pulaski); 1934, pp. 385–391, 394–396, 399, 402, 403 (Adams, Alexander, Calhoun, Champaign, Hancock, Henry, Jersey, Macon, Madison, Mason, McHenry, Ogle, Pike, St. Clair, Union, Whiteside). Britton (Cook, McHenry).

**Adams**—Mississippi River (June). **Alexander**—Horseshoe Lake (June–Aug.). **Calhoun**—Mississippi River (June). **Carroll**—Mississippi River (July, Sept.). **Cass,** Chandlerville—Sangamon River (July). **Champaign,** Mahomet—Sangamon River (Sept.); Urbana—park pond (July–Oct.), ox-bow pond (Apr., May). **Cook,** Argonne Forest Preserve—swamp at 95th St. and 104th Ave., and small pond S. of Archer Ave. and W. of Wolf Rd., July 13, 1939, #492, 522; Northbrook—small pond at Somme Forest Preserve, May 8, 1939, #240; Palos Park—small pond, Harlem Ave. at 143rd St., July 14, 1939, #559; Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452; Sag Bridge—quarry pond N. of, and pond on McCarthy Road E. of Archer Ave., Sept. 8, 1939, #1011, 1014; Wheeling—DesPlaines River at Dam #1 (Hintz Road) and Dundee Road, Aug. 8, 1939, #766, 777. **Hancock**—Lake Keokuk (July), Mississippi River (June). **Henderson**—Mississippi River (Aug.). **Henry,** Colona—slough (June–Aug.). **Jersey, Jo Daviess**—Mississippi River (June–Sept.). **Macon**—Lake Decatur (Mar.–Nov.); Decatur—park pond (Feb.–Oct.); Harristown—Sangamon River (Sept.) **Madison**—Mississippi River (June). **Mason,** Havana—Illinois River (Jan., Mar.–Nov.); Topeka—Quiver Creek (Oct.). **McHenry,** Fox River; Greenwood—Wonder Lake, July 6, 1939, #368, Nippersink Creek about 4 miles N.W., July 7, 1939, #432; Marengo—Kishwaukee River about 3 miles W., July 8, 1939, #451; Ridgefield—pond 1 mile N.W., July 7, 1939, #418. **Menard,** Petersburg—Sangamon River (June, July, Sept.). **Mercer,** Mississippi River (Aug.). **Ogle,** Grand Detour—slough (June–Aug.). **Pike**—Mississippi River (June). **Pulaski,** Wetaug—sink-hole ponds (Apr., July, Sept., Dec.). **Rock Island**—Mississippi River (July–Sept.). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (June, Sept.). **St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.). **Whiteside**—

Mississippi River (July, Sept.); Erie—Rock River and Rock River and Hatwood Sloughs (June–Aug.).

P. LONGICAUDA var. TORTA Lemm. Walton, *loc. cit.* (1915).

Britton: **Cook,** Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452. **Lake,** Fox Lake—in Lake Marie, Sept. 14, 1939, #1030.

P. PLEURONECTES (O. F. M.) Duj. Walton, *loc. cit.*, p. 380. pl. 16. f. 9 (1915).

Kofoid 1908, pp. 85, 292, 323 (Mason). Transeau 1913B, p. 73 (Coles). Eddy 1931A, pp. 481, 484 (Macon, Sangamon); 1934, pp. 392, 393, 396, 397 (Champaign, Piatt). Britton (Cook, Lake, McHenry).

**Champaign,** Seymour—temporary pond (Feb.–July); Urbana —ox-bow pond (July, Aug.). **Coles,** Charleston—ponds (Apr.). **Cook,** Argonne Forest Preserve—swamps and ponds at 95th St. and 96th Ave., 95th and 100th Aves., 95th St. and 104th Ave., W. of Wolf Road on Archer Ave., and at Palos Golf Club, July 13, Sept. 8, 1939, #477, 484, 492, 493, 515, 529, 534, 988, 996; Glen view—swamp and pond about 1½ miles W., Apr. 7, 1939, #228; Goeselville—small ponds on Harlem Ave. at 143rd St., July 14, 1939, #578, 581, 587; Morton Grove—small ponds, May 10, Oct. 3, 1938, #43, 217; Northbrook—ponds and swamps at Somme Forest Preserve, June 27, 1938, May 8, July 3, 1939, #113, 250, 252, 350; Orland Park—small pond and extensive swamp on 131st St., W. of Wolf Road, Sept. 8, 1939, #1018; Park Ridge—DesPlaines River at Touhy Ave., July 12, 1939, #452; Sag Bridge—quarry pond N. of, and small pond E. of Archer Ave. on McCarthy Road, Sept. 8, 1939, #1011, 1014; Schnells Corner—small pond at Elk Grove Forest Preserve, June 22, 1939, #324; Skokie—swamp at Dempster Golf Club, Oct. 3, 1938, #213, small pond at Dempster St. and Milwaukee Ave., Apr. 2, 1938, #1; Wheeling—DesPlaines River at Dam #1 (Hintz Road) and at Dundee Road, Aug. 8, 1939, #766, 777. **Lake,** Everett—small pond S. of, May 15, 1938, #71; Fox Lake—Nippersink Creek, July 25, 1939, #601; Libertyville—small pond 2 miles N.E., July 14, 1938, #121; Mundelein—Hawthorne Drainage Ditch at Route 59A, July 29, 1938, #182; Prairie View—swamp, July 29, 1938, #184; Volo—bog at Tamarack Farm, June 3, 1939, #294. **Macon**—Lake Decatur (July). **Mason,** Havana—Illinois River (June–Sept.). **McHenry,** Greenwood—swamp about 2 miles N.E., July 6, 1939, #396, Nippersink Creek, July 7, 1939, #432; Harvard—Kishwaukee River, July 8, 1939, #438; McHenry—swamp E. of McCullom Lake, July 6, 1939, #374; Woodstock—swamp 2 miles S.E., July 7, 1939, #401, 403. **Piatt,**

Monticello—Sangamon River (May–Oct.). **Sangamon,** Illiopolis, Riverton—Sangamon River (Sept.).

P. PYRUM (Ehr.) Stein. Walton, *loc. cit.*, p. 382. pl. 17. f. 9 (1915). Hempel 1898, p. 326; Kofoid 1908, p. 85: **Mason,** Havana—Illinois River (Aug., Oct.).

P. TRIQUETER (Ehr.) Duj. Walton, *loc. cit.*, p. 380. pl. 16. f. 9 (1915). *Euglena triqueter* Ehr.
Britton: **Cook,** Sag Bridge—small pond, Sept. 8, 1939, #996. Hempel 1898, p. 326; Kofoid 1908, p. 85: **Mason,** Havana—Illinois River (July–Sept.). Bailey 1845, p. 34, as *Euglena triqueter* (?): **St. Clair**—Mississippi River.

## TRACHELOMONAS Ehrenberg, 1833

T. ACUMINATA (Schmarda) Stein. Walton, *loc. cit.*, p. 394. pl. 20. f. 4 (1915).
Hempel 1898, p. 325: **Fulton**—Phelp's Lake (July, Aug.). Hempel, *loc. cit.;* Kofoid 1908, pp. 90, 292, 324: **Mason,** Havana—Matanzas Lake and Illinois River (Apr.–Nov., Feb.).

T. ARMATA (Ehr.) Stein. Walton, *loc. cit.*, p. 395. f. 10 (1915).
Britton: **Cook,** Sag Bridge—small pond, Sept. 8, 1939, #996, 997 Hempel 1898, p. 325; Kofoid 1908, p. 91: **Mason,** Havana—Illinois River ("summer"), Quiver Creek (Oct.). Eddy 1931B, p. 463: **Pulaski,** Wetaug—sink-hole pond (Sept.).

T. CAUDATA (Ehr.) Stein. Walton, *loc. cit.*, p. 399. pl. 21. f. 10 (1915). Hempel 1898, p. 325: **Fulton**—Phelp's Lake and Illinois River (Aug., Sept.). Kofoid 1908, p. 91: **Mason,** Havana—Illinois River ("summer").

T. ENSIFERA Daday. Walton, *loc. cit.*, p. 395. pl. 20. f. 8 (1915).
Eddy 1931A, pp. 474, 479, 481, 484: **Cass,** Chandlerville—Sangamon River (June, July). **Macon**—Lake Decatur (July). **Menard,** Petersburg—Sangamon River (July, Sept.). **Piatt,** Monticello—Sangamon River (June). Eddy 1931B, pp. 456, 463: **Pulaski,** Wetaug—sink-hole pond (July, Sept.). Eddy, *loc. cit.* (1931A): **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (July, Sept.).

T. HISPIDA (Perty) Stein. Walton, *loc. cit.*, p. 397. pl. 21. f. 3 (1915). Eddy 1934, pp. 396, 397: **Champaign,** Seymour—temporary pond (Feb.–July, Oct.); Urbana—ox-bow pond (Apr.–May, Aug.). Eddy 1927B, pp. 209, 224: **Cook,** Chicago—Lake Michigan (Sept.). Eddy 1931A, pp. 479, 481, 484: **Macon**—Lake Decatur (July, Sept.); Harristown—Sangamon River (Sept.). Hempel 1898, p. 326; Kofoid 1903, p. 516; 1908, pp. 90, 292, 324: **Mason,** Havana—Illinois River and lakes (all months); Topeka—Quiver Creek (Sept.). Eddy, *loc. cit.* (1931A): **Menard,** Petersburg—

Sangamon River (Sept.). Eddy 1931B, pp. 456, 463: **Pulaski,** Wetaug—sink-hole pond (July, Sept., Dec.). Eddy, *loc. cit.* (1931A): **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (June, July, Sept.).

T. MAGDALENIANA Defl. Deflandre, Rev. Gen. de Bot. 39: 44. pl. 11. f. 633, 634 (1927).

Eddy 1931B, p. 455: **Pulaski,** Wetaug—sink-hole pond (July, Sept.).

T. SCHAUINSLANDII Lemm. Walton, Ohio Biol. Surv. 19: 395. pl. 20. f. 7 (1915).

Galtsoff 1924, pp. 399, 402, 405: **Carroll, Hancock, Henderson, Jo Daviess, Mercer, Rock Island** and **Whiteside**—in Mississippi River (July–Sept.).

T. SIMILIS Stokes. Walton, *loc. cit.*, p. 392. pl. 19. f. 4 (1915).

Eddy 1931B, p. 463: **Pulaski,** Wetaug—sink-hole pond (July, Sept.).

T. TAMBOWIKA Swir. Deflandre, Rev. Gen. de Bot. 39: 45. pl. 13. f. 734, 735 (1927).

Eddy 1931B, p. 463: **Pulaski,** Wetaug—sink-hole pond (Sept.).

T. URCEOLATA Stokes. Walton, Ohio Biol. Surv. 19: 394. pl. 20. f. 5 (1915).

Hempel 1898, p. 326: **Fulton**—(Sept.). Kofoid 1908, p. 91: **Mason,** Havana—Illinois River ("summer").

T. VOLVOCINA Ehr. Walton, *loc. cit.*, p. 389. pl. 18. f. 2 (1915).

Jelliffe 1893, p. 311 (Cook). Kofoid 1908, pp. 90, 292, 324 (Mason). Eddy 1931A, pp. 474, 479, 481, 484 (Cass, Macon, Menard, Sangamon); 1931B, pp. 453, 455, 456, 463 (Pulaski); 1934, pp. 385, 386, 389–391, 393–397, 399, 402, 403 (Adams, Alexander, Calhoun, Champaign, Hancock, Jackson, Jersey, Macon, Madison, Mason, Massac, McHenry, Monroe, Ogle, Piatt, Pike, Pulaski, Randolph, St. Clair, Union, Wabash, Whiteside). Britton (Cook, Lake, McHenry).

**Adams,** Mississippi River (June). **Alexander**—Mississippi and Ohio Rivers (June). **Calhoun**—Mississippi River (June). **Cass,** Chandlerville—Sangamon River (June–Sept.). **Champaign,** Seymour—temporary pond (Feb.–July, Oct.); Urbana—ox-bow and park pond (all months). **Cook,** Argonne Forest Preserve—ponds and swamps, July 13, Sept. 8, 1939, #540, 973, 978, 982, 988, 996; Chicago—Lake Michigan; Northbrook—pond at Somme Forest Preserve, May 15, 1938, #68; Sag Bridge—quarry pond, Sept. 8, 1939, #1011. **Hancock, Jackson, Jersey**—Mississippi River (June). **Lake,** Halfday—swamp, May 15, 1938, #70; Lake Forest—pond, May 15, 1938, #71. **Macon,** Decatur—Lake Decatur (June–Nov.); park pond (June, Dec.); Harristown—Sangamon River (June, July, Sept.). **Madison**—Mississippi River (June).

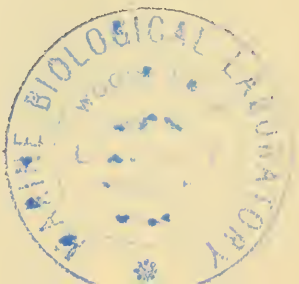
**Mason,** Havana—Illinois River (all months). **Massac**—Ohio River (June). **McHenry,** Algonquin—Fox River ("summer"); McHenry—swamp E. of McCullom Lake, July 6, 1939, #380, 385; Ridgefield—small pond, July 7, 1939, #418. **Menard,** Petersburg—Sangamon River (June, July, Sept.). **Monroe**—Mississippi River (June). **Ogle,** Grand Detour—slough (June–Aug.). **Piatt,** Monticello—Sangamon River (May–Sept.). **Pike**—Mississippi River (June). **Pulaski**—Ohio River (June); Wetaug—sinkhole ponds (Apr., July, Sept., Dec.). **Randolph**—Mississippi River (June). **Sangamon,** Illiopolis, Riverton, Springfield—Sangamon River (June–Sept.). **St. Clair**—Mississippi River (June). **Union,** Larue—Wolf Lake (June–Aug.). **Wabash,** Mt. Carmel—Wabash River (Apr.). **Whiteside,** Erie—Hatwood and Rock River Sloughs (June–Aug.); Sterling—Rock River ("summer").

Order: COLACIALES
Family: COLACIACEAE

COLACIUM Ehrenberg, 1833

C. CALVUM Stein. Walton, *loc. cit.*, p. 401. pl. 21. f. 15 (1915).
Kofoid 1908, p. 72: **Mason,** Havana—Illinois River (Apr.–Oct.).

C. VESICULOSUM Ehr. Walton, *loc. cit.*, p. 400. f. 13 (1915).
Kofoid 1908, p. 72: **Mason,** Havana—Illinois River (June, Sept.)



# EXCLUDED SPECIES

The following list of algae consists of species reported from Illinois which the writer has been unable to place in the catalog with any degree of certainty consistent with modern interpretations of the algae. Most of these records are from the earlier Illinois reports and consist mainly of old names involving considerable taxonomic confusion and inconsistency of treatment by various workers. In the absence of the specimen on which the records were based, it seems useless to retain them as authentic records although it is perhaps possible some few can be correctly interpreted by special students of certain algal groups. Specialists have been consulted with regard to the excluded species of diatoms, blue-green algae and the genera of the family Zygnemataceae and the opinions of these specialists followed in the exclusion of the listed species of these algal groups. These reports have not been included in the totals of genera and species reported for the State and recorded elsewhere in the catalog. The only data given are the references to publications in which the species were reported.

1. Aphanothece clathrata W. & G. S. West. (Britton 1940, p. 71.) According to Dr. F. Drouet the validity of this species is questionable.
2. Cerasterias longispina (Perty) Reinsch. (Kofoid 1908, p. 34.)
3. C. raphidioïdes Reinsch. (Kofoid 1908, p. 34.)
4. Ceratium brevicorne Hempel. (Hempel 1896, p. 310; 1898, p. 330; Kofoid 1908, p. 71.)
5. Cladophora glomerata var. callicoma. (Solheim & Penfound 1928, p. 86.)
6. Conferva vulgaris Rab. (Johnson & Atwell 1890, p. 19.)
7. Cylindrocapsa amoena Wolle. (Johnson & Atwell 1890, p. 19.)
8. Dinobryon cylindricum var. angulatum (Seligo) Lemm. (Kofoid 1908, p. 78.)
9. D. c. var. schauinslandii (Lemm.) Lemm. (Kofoid 1908, p. 78.)
10. D. elongatum var. undulatum Lemm. (Kofoid 1908, p. 78.)
11. D. sertularia var. alpinum Imhof. (Kofoid 1908, p. 78.)
12. D. s. var. angulatum Seligo. (Hempel 1898, p. 323; Kofoid 1908, pp. 74, 320.)
13. D. s. var. divergens Imhof. (Hempel 1898, p. 232; Kofoid 1908, pp. 74, 320.)
14. D. s. var. stipitatum. (Kofoid 1908, pp. 74, 321.)
15. D. s. var. undulatum. (Hempel 1898, p. 323; Kofoid 1908, p. 74.)
16. Euglena minuta. (Agersborg 1930, pp. 109, 110, 113.)
17. Gomphosphaeria lacustris Chod. (Daily 1938, p. 80.) According to Dr. F. Drouet the validity of this species is questionable.

18. Lyngbya obscura. (Johnson & Atwell 1890, p. 21.)
19. Melosira lacustris Chase. (Thomas & Chase 1887, p. 329.)
20. Microcoleus anguiformis Harv. (Johnson & Atwell 1890, p. 21.)
21. M. chthonoplastes Thuret. (Tilden 1910, p. 156.)
    The Illinois record was based on Johnson & Atwell's report of M. anguiformis.
22. Microthamnion exiguum Reinsch. (Transeau 1913B, p. 86.)
23. Navicula staurifera Thomas. (Thomas & Chase 1887, p. 330.)
24. Oscillaria froelichii var. dubia Rab. (Johnson & Atwell 1890, p. 21.)
25. O. f. var. genuina. (Johnson & Atwell 1890, p. 21.)
26. O. tenerrima Kuetz. (Johnson & Atwell 1890, p. 21.)
27. Oscillatoria amphibia Ag. (Transeau 1913B, p. 70; Solheim & Penfound 1928, p. 86.)
    Occurs in brackish and thermal waters and is a doubtful Illinois record according to Dr. F. Drouet.
28. O. cruenta Grun. (Johnson & Atwell 1890, p. 21.)
29. O. nigra Vauch. (Johnson & Atwell 1890, p. 21.)
30. O. subtilissima Kuetz. (Johnson & Atwell 1890, p. 21; Solheim & Penfound 1928, p. 86.)
31. Pleurococcus vulgaris Menegh. (Transeau 1913C, p. 34.)
32. Pleurosigma minor. (Thomas & Chase 1887, p. 330.)
33. Protococcus viridis var. gigas Kuetz. (Johnson & Atwell 1890, p. 19.)
34. Raphidium polymorphum var. contortum Wolle. (Johnson & Atwell 1890, p. 19.)
35. Spirogyra adnata Kuetz. (Johnson & Atwell 1890, p. 19.)
36. S. fusco-atra Rab. (Johnson & Atwell 1890, p. 20.)
37. S. lutetiana Kuetz. (Johnson & Atwell 1890, p. 20.)
38. S. rectispira Merriman. (O'Hanlon 1930, p. 98.)
39. S. rivularis (Hass.) Rab. (Johnson & Atwell 1890, p. 20.)
40. S. subaequa Kuetz. (Johnson & Atwell 1890, p. 20.)
41. S. weberi var. elongatum Rab. (Johnson & Atwell 1890, p. 20.)
42. Stigeoclonium tenue var. uniforme Rab. (Johnson & Atwell 1890, p. 19.)
43. Surirella campylodiscus. (Bailey 1845, p. 34.)
44. Synedra simalongis W. S. (Thomas & Chase 1887, p. 330.)
45. Tetrapedia gothica Reinsch. (Kofoid 1908, p. 22.)
    A very questionable and inadequately known species.
46. Trachelomonas torta Stokes. (Hempel 1898, p. 323; Kofoid 1908, p. 91.)
47. T. volvocina var. rugulosa Kuetz. (Kofoid 1908, p. 91.)
48. Uroglena radiata Calkins. (Kofoid 1908, p. 91.)
49. Vaucheria macrospora. (O'Hanlon 1930, p. 100.)
50. Zygnema stellinum var. genuinum Kirch. (Johnson & Atwell 1890, p. 20.)

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# INDEX


Achnanthaceae, 4, 48
Achnanthes, 48
  exilis, 48
  lanceolata, 48
    v. rostrata, 48
  microcephala, 48
  minutissima, 48
*Achnanthidium*
  *flexellum*, 48
  *lanceolatum*, 48
    v. *dubia*, 48
Achnanthineae, 4, 48
Actinastrum, 111
  hantzschii, 111
    v. fluviatile, 112
Actinocyclus, 40
  niagarae, 40
Amphipleura, 49
  pellucida, 49
Amphiprora, 49
  calumetica, 49
  ornata, 49
Amphithrix, 29
  janthina, 29
Amphora, 61
  normani, 61
  ovalis, 61
Anabaena, 25
  catenula, 25
  circinalis, 26
  flos-aquae, 26
  inaequalis, 26
  *laxa*, 26
  oscillarioides, 26
  planctonica, 26
  spiroides, 27
    v. crassa, 27
  variabilis, 27
Anacystis, 15
  marginata, 15
  peniocystis, 15
  rupestris, 15
    v. prasina, 15
Ankistrodesmus, 106
  falcatus, 106
  longissimus, 106
Anomoeoneis, 49
  exilis, 49
  follis, 49
  serians, 50
Aphanizomenon, 27
  flos-aquae, 27
  ovalisporum, 27
Aphanocapsa, 15
  *brunnea*, 15
  grevillei, 15
Aphanochaete, 77
  repens, 77
*Aphanothece*
  *clathrata*, 154
  *stagnina*, 15
Apiocystis, 75
  brauniana, 75
Arthrodesmus, 133
  *acutus*, 115, 116
  convergens, 133
  *quadricaudatus*, 116
*Arthrospira*
  *gomontiana*, 25
Asterionella, 43
  formosa, 43
  gracillima, 43

Bacillariophyceae, 3, 37
Basicladia, 82
  chelonum, 82
Batrachospermaceae, 3, 30
Batrachospermum, 30
  boryanum, 30
Botrydiaceae, 3, 33
Botrydium, 34
  granulatum, 34
  walrothii, 34
Botryococcaceae, 3, 30
Botryococcus, 31
  braunii, 31
  sudeticus, 31
Bulbochaete, 85
  brebissonii, 85
  crassiuscula, 85
  crenulata, 85
  furberae, 85
  gigantea, 85
  hiloensis, 85
  insignis, 85
    v. *reticulata*, 86
  intermedia, 85
  minor, 85
  mirabilis, 85
  nana, 85
  nordstedtii, 85
  rectangularis, 86
  repanda, 86
  reticulata, 86

subintermedia, 86
*subsimplex*, 86
varians, 86
v. hawaiense, 86
v. subsimplex, 86

*Calocylindrus curtus*, 136
Caloneis, 50
alpestris, 50
bacillaris, 50
bacillum, 50
fasciata, 50
silicula, 50
v. alpina, 50
v. genuina, 50
v. gibberula, 50
v. inflata, 50
v. undulata, 51
trinodis, 51
Calothrix, 29
kawraiskyi, 29
stagnalis, 29
Campylodiscus, 66
noricus, 66
Carteria, 69
multifilis, 69
Centrales, 3, 37
*Cerasterias*
*longispina*, 154
*raphidioides*, 154
Ceratium, 143
*brevicorne*, 154
cornutum, 143
hirundinella, 143
*kumaonense*, 143, 144
Chaetophora, 78
attenuata, 78
elegans, 78
*endiviaefolia*, 78
incrassata, 78
pisiformis, 79
Chaetophoraceae, 4, 77
Chaetosphaeridium, 82
globosum, 82
pringsheimii, 82
Chamaesiphonales, 3, 19
Characiaceae, 4, 99
Characium, 99
ambiguum, 99
naegelii, 99
pringsheimii, 99
*Chlamydococcus pluvialis*, 74
Chlamydomonadaceae, 4, 69
Chloraster, 69
gyrans, 69
Chlorella, 106
conductrix, 106
parasitica, 107
vulgaris, 107
Chlorochytrium, 98
knyanum, 98
Chlorococcaceae, 4, 98
Chlorococcales, 4, 98
Chlorococcum, 98
humicola, 98
Chlorophyceae, 4, 69
Chlorophyta, 4, 69
Chlorotylium, 79
mammiforme, 79
Chromulineae, 3, 34
Chroococcaceae, 3, 15
Chroococcales, 3, 15
Chroococcus, 16
limneticus, 16
*minutus*, 16
rufescens, 16
turgidus, 16
Chrysomonadales, 3, 34
Chrysophyceae, 3, 34
Chrysophyta, 3, 30
Chrysophaerella, 34
longispina, 34
Cladophora, 82
canalicularis, 82
crispata, 82
fracta, 83
f. flowtowiana, 83
*flowtowiana*, 83
glomerata, 83
v. *callicoma*, 154
kuetzingiana, 84
Cladophoraceae, 4, 82
Cladophorineae, 4, 82
*Clathrocystis*, 17
*aeruginosa*, 17
Closteriopsis, 107
longissima, 107
Closterium, 133
acerosum, 133
v. elongatum, 134
acutum, 134
braunii, 134
dianae, 134
didymotocum, 134
ehrenbergii, 134
gracile, 134
v. elongatum, 134
intermedium, 134
juncidum v. brevior, 135
lanceolatum, 135

leibleinii, 135
littorale, 135
lunula, 135
moniliferum, 135
*obtusum*, 133
parvulum, 135
pritchardianum, 135
strigosum, 135
striolatum, 135
v. *elongatum*, 136
v. *intermedium*, 134
*subtruncatum*, 134, 135
turgidum, 136
venus, 136
Cocconeis, 48
*communis*, 48, 49
flexella, 48
*lineata*, 49
pediculus, 48
placentula, 49
v. lineata, 49
*Cocconema cymbiforme*, 63
Coelastraceae, 4, 105
Coelastrum, 105
cambricum, 105
microporum, 105
reticulatum, 106
sphaericum, 106
Coelosphaerium, 16
collinsii, 16
kuetzingianum, 16
*naegelianum*, 16
Colaciaceae, 4, 153
Colaciales, 4, 153
Colacium, 153
calvum, 153
vesiculosum, 153
Coleochaetaceae, 4, 81
Coleochaete, 81
irregularis, 81
nitellarum, 82
orbicularis, 82
scutata, 82
soluta, 82
*Colletonema*
*lacustre*, 62
*Conferva bombycina*, 32
*minor*, 33
*utriculosa*, 33
*vulgaris*, 154
Coscinodiscaceae, 3, 37
Coscinodiscineae, 3, 37
Coscinodiscus, 37
*asteromorphus*, 37
asteromphalus, 37
Cosmarium, 136
biretum v. trigibberum, 136
botrytis, 136
broomei, 136
constrictum, 136
crenatum, 136
cucumis, 136
curtum, 136
dentatum, 136
depressum, 137
formosulum, 137
v. nathorstii, 137
granatum, 137
holmiense, 137
v. integrum, 137
meneghinii, 137
moniliforme, 137
nitidulum, 137
pachydermum v. aethiopicum, 137
pericymatium, 137
polygonum, 137
porrectum, 137
protractum, 138
punctulatum, 138
quadrum, 138
quinarium, 138
rectangulare, 138
reniforme, 138
sexangulare, 138
f. minima, 138
speciosum, 138
subcostatum, 138
subcrenatum, 138
subimpressulum, 138
supraspeciosum, 138
triplicatum, 139
turpinii, 139
Cosmocladium, 139
saxonicum, 139
Crucigenia, 112
irregularis, 112
lauterbornei, 112
rectangularis, 112
tetrapedia, 112
Cyanophyta, 3, 15
Cyclotella, 37
antiqua, 37
bodanica, 37
v. michiganensis, 37
v. stellata, 37
comta, 37
v. glabriuscula, 37
glomerata, 37
kuetzingiana, 37
melosiroides, 37

meneghiniana, 37
michiganiana, 38
ocellata, 38
operculata, 38
Cylindrocapsa, 77
*amoena*, 154
geminella, 77
v. minor, 77
Cylindrocapsaceae, 4, 77
Cylindrospermum, 27
licheniforme, 27
majus, 27
muscicola, 27
Cymatopleura, 66
*apiculata*, 67
elliptica, 66
v. hibernica, 66
f. spiralis, 66
*hibernica*, 66
solea, 66
v. apiculata, 67
v. subconstricta, 67
v. vulgaris, 67
*spiralis*, 66
Cymbella, 61
aequalis, 61
affinis, 61
amphicephala, 62
*anglica*, 62
aspera, 62
cistula v. maculata, 62
cuspidata, 62
cymbiformis, 62
ehrenbergii, 62
*gastroides*, 62
gracilis, 62
lacustris, 62
laevis, 62
lanceolata, 62
leptoceros, 62
*maculata*, 62
naviculiformis, 62
parva, 62
prostrata, 63
*rotundata*, 63
*stromatophora*, 63
triangulum, 63
tumida, 63
turgida, 63
ventricosa, 63
Cymbellaceae, 4, 61

Dactylococcus, 107
infusionum, 107
*Debarya decussata*, 132
Denticula, 64
tenuis, 64
Desmidiaceae, 4, 133
Desmidium, 139
aptogonum, 139
grevillei, 139
swartzii, 139
Diatoma, 42
anceps, 42
elongatum v. tenuis, 42
hiemale, 42
v. *genuina*, 42
v. mesodon, 43
vulgare, 43
Diatomaceae, 4, 42
Dichotomosiphon, 117
tuberosus, 117
Dictyosphaerium, 107
ehrenbergianum, 107
pulchellum, 107
Dimorphococcus, 108
lunatus, 108
Dinobryon, 35
bavaricum, 35
cylindricum, 35
v. *angulatum*, 154
v. *divergens*, 35
v. *palustre*, 35
v. *pediforme*, 36
v. *schauinslandii*, 154
divergens, 35
*elongatum*, 35
v. *undulatum*, 154
pediforme, 36
*protuberans*, 36
sertularia, 36
v. *alpinum*, 154
v. *angulatum*, 154
v. *divergens*, 154
v. protuberans, 36
v. *stipitatum*, 154
v. *thyrsoideum*, 36
v. *undulatum*, 154
sociale, 36
v. americanum, 36
*stipitatum* v. *americanum*, 36
v. *bavaricum*, 35
Dinoflagellatae, 4, 142
Dinophyceae, 4, 142
Diploneis, 51
elliptica, 51
puella, 51
*Docidium trabecula*, 141
Draparnaldia, 79
acuta, 79

glomerata, 79
plumosa, 80
ravenelii, 80

*Encyonema caespitosum*, 63
*prostratum*, 63
*triangulum*, 63
*ventricosum*, 63
Endosphaeraceae, 4, 98
Epithemia, 63
*alpestris*, 63
argus, 63
v. alpestris, 63
v. *amphicephala*, 63
*gibba*, 64
muelleri, 63
ocellata, 64
sorex, 64
turgida, 64
v. westermanii, 64
*ventricosa*, 64
zebra, 64
Euastrum, 139
johnsonii, 139
oblogum, 139
pulchellum, 139
*Eucocconeis*
*flexella*, 48
Eudorina, 69
elegans, 69
Euglena, 145
acus, 145
acutissima, 146
deses, 146
elongata, 146
geniculata, 146
gracilis, 146
*minuta*, 154
oblonga, 146
oxyuris, 146
sanguinea, 147
spirogyra, 147
spiroides, 147
torta, 147
tripteris, 147
*triqueter*, 151
viridis, 147
Euglenaceae, 4, 145
Euglenales, 4, 145
Euglenophyceae, 4, 145
Euglenophyta, 4, 145
Eunotia, 47
flexuosa, 47
formica, 47
lunaris, 47
*major*, 47
monodon v. major, 47
pectinalis v. minor, 48
*westermanii*, 64
Eunotiaceae, 4, 47
Eupodiscaceae, 3, 40

Fragilaria, 43
capucina, 43
v. mesolepta, 43
constricta, 44
construens, 44
v. venter, 44
crotonensis, 44
v. prolongata, 44
harrisonii, 44
v. rhomboides, 44
*mutabilis*, 44
*parasitica*, 46
pinnata, 44
v. lancettula, 44
*rhabdosoma*, 43
virescens, 45
Fragilariaceae, 4, 43
Fragilarineae, 4, 41
Frustulia, 51
rhomboides, 51
viridula, 51
vulgaris, 51

*Gaillonella distans*, 38
Genicularia, 132
spirotaenia, 132
Glenodiniaceae, 4, 142
Glenodinium, 142
cinctum, 142
gymnodinium, 142
palustre, 142
quadridens, 142
*Gloeocapsa*
*polydermatica*, 15
Gloeocystis, 74
ampla, 74
gigas, 74
planctonica, 74
Gloeotaenium, 108
loitlesbergerianium, 108
Gloeotrichia, 30
natans, 30
pisum, 30
Golenkinia, 98
radiata, 98
Gomphoneis, 59
herculeana, 59
v. robusta, 59

Gomphonema, 59
acuminatum, 59
v. coronatum, 59
v. elongatum, 59
v. *intermedia*, 59
v. laticeps, 59
v. trigonocephalum, 59
v. turris, 60
angustatum, 60
v. obtusatum, 60
*capitatum*, 60
*coronatum*, 59
constrictum, 60
v. capitatum, 60
f. turgidum, 60
*curvatum*, 49
*dichotomum*, 60
*eriense*, 59
geminatum, 60
gracile v. dichotoma, 60
*herculeanum*, 59
intricatum, 60
v. vibrio, 61
*laticeps*, 59
montanum v. subclavatum, 61
olivaceum, 61
v. calcarea, 61
parvulum, 61
*robustum*, 59
semiapterum, 61
sphaerophorum, 61
*subclavatum*, 61
*trigonocephalum*, 59
*turgidum*, 60
*turris*, 60
*vibrio*, 61
Gomphonemataceae, 4, 59
Gomphosphaeria, 17
aponina, 17
*lacustris*, 154
Gonatozygon, 132
brebissonii, 132
Gonium, 70
pectorale, 70
sociale, 71
*Gonyaulax palustre*, 142
Gyrosigma, 52
acuminatum, 52
attenuatum, 52
eximium, 52
kuetzingii, 52
scalproides, 52
spencerii, 52
wormleyi, 52
*Haematococcus pluvialis*, 74
Hantzschia, 64
amphioxys, 64
f. capitata, 65
v. vivax, 65
*Herposteiron confervicola*, 78
Heterococcales, 3, 30
Heterocystineae, 3, 25
Heterodiniaceae, 4, 143
Heterosiphonales, 3, 33
Heterotrichales, 3, 32
Homocystineae, 3, 19
Hormogonales, 3, 19
Hyalotheca, 140
dissiliens, 140
mucosa, 140
Hydrodictyaceae, 4, 99
Hydrodictyon, 99
reticulatum, 99
*utriculatum*, 99

*Ineffigiata neglecta*, 31
Isochrysidineae, 3, 34

Kentrosphaera, 98
facciolaae, 98
Kirchneriella, 108
lunaris, 108
obesa v. major, 108

Lepocinclis, 148
ovum, 148
Lyngbya, 19
aerugineo-caerulea, 19, 25
aestuarii, 19
birgei, 19
diguettii, 19
*obscura*, 155
*phormidium* v. *rivularis*, 25
putealis, 19
taylorii, 19
versicolor, 20
*Lysigonium granulatum*, 38
*varians*, 39, 40

Mallomonadaceae, 3, 34
Mallomonas, 34
acaroides, 34
caudata, 34
*plosslii*, 34
producta, 34
Mastogloia, 52
smithii, 52
v. amphicephala, 53
v. lacustris, 53

Melosira, 38
crenulata, 38
distans, 38
granulata, 38
v. *spinosa*, 38
italica, 39
v. tenuissima, 39
juergensii, 39
*lacustris*, 155
*subflexilis*, 39
varians, 39
Meridion, 42
circulare, 42
v. constricta, 42
v. *zinkenii*, 42
*constrictum*, 42
Meridionaceae, 4, 42
Merismopoedia, 17
convoluta, 17
glauca, 17
*tenuissima*, 17
*Mesocarpus nummuloides*, 120
*scalaris*, 120
Mesotaeniaceae, 4, 132
Micractinium, 113
pusillum, 113
quadrisetum, 113
Micrasterias, 140
americana, 140
*boryana*, 99
*elliptica*, 99
rotata, 140
*tricyclia*, 99
truncata, 140
Microcoleus, 20
acutissimus, 20
*anguiformis*, 155
*chthonoplastes*, 155
lacustris, 20
vaginatus, 20
*Microcystis*
*aeruginosa*, 17, 18
*flos-aquae*, 17, 18
*ichthyoblabe*, 17
*incerta*, 18
*Microneis minutissima*, 48
Microspora, 76
floccosa, 76
pachyderma, 76
quadrata, 77
stagnorum, 77
tumidula, 77
willeana, 77
Microsporaceae, 4, 76
Microthamnion, 80
*exiguum*, 155
kuetzingianum, 80
strictissimum, 80
Mougeotia, 119
boodlei, 119
calcarea, 119
*divaricata*, 120
elegantula, 119
floridana, 119
genuflexa, 119
v. *gracilis*, 120
gracillima, 120
*mirabilis*, 119, 120
*notabilis*, 121
nummuloides, 120
quadrangulata, 120
reinschii, 120
robusta, 120
v. *biornata*, 120
scalaris, 120
sphaerocarpa, 120
tenuis, 121
*transeauii*, 121
tumidula, 121
viridis, 121
Myxophyceae, 3, 15

Navicula, 53
ambigua, 53
f. *craticularis*, 53
*amphirhyncus*, 55
anglica, 53
*appendiculata*, 56
*bacillaris*, 50
bacillum, 53
*bicapitata*, 57
*brebissonii*, 56
*cardinalis*, 56
confervacea, 53
cryptocephala, 53
cuspidata, 53
dicephala, 53
v. elginensis, 53
*divergens*, 56
*dubia*, 55
*elliptica*, 51
v. *minutissima*, 51
exigua, 53
*exilis*, 49
gastrum, 53
*gibba*, 56
*globiceps*, 57
gracilis, 54
*hemiptera*, 57
*hitchcockii*, 55

*iridis*, 55
v. *affinis*, 56
v. *amphigomphus*, 55
v. *amphirhyncus*, 55
v. *firma*, 56
v. *producta*, 56
*lacunarum*, 50
*limosa*, 50
v. *subinflata*, 50
v. *undulata*, 51
*major*, 57
*mesolepta*, 57
mutica, 54
*nobilis*, 57
oblonga, 54
v. subcapitata, 54
*parva*, 57
platystoma, 54
protracta, 54
*punctata*, 55
pupula, 54
radiosa, 54
v. tenella, 54
reinhardtii, 54
*rhomboides*, 51
rhyncocephala, 54
salinarum, 54
v. intermedia, 55
*saugerri*, 55
scutelloides, 55
seminulum, 55
*serians*, 50
*sigma*, 52
*silicula* v. *gibberula*, 50
*staurifera*, 155
*tabellaria*, 57
*tenella*, 54
*termes*, 57
*trinodis*, 51
*trochus*, 49
*tumida*, 53
tuscula, 55
*varians*, 53
*viridis*, 58
viridula, 55
Naviculaceae, 4, 49
Naviculineae, 4, 49
Neidium, 55
amphigomphus, 55
amphirhyncus, 55
dubium, 55
hitchcockii, 55
iridis, 55
v. firma, 56
productum, 56
Nemalionales, 3, 30
Nephrocytium, 108
agardhianum, 108
lunatum, 108
Netrium, 133
digitus, 133
Nitzschia, 65
acicularis, 65
*amphioxys*, 64
clausii, 65
closterium, 65
commutata, 65
denticula, 65
dissipata, 65
hungarica, 65
linearis, 65
v. tenuis, 65
palea, 65
v. tenuirostris, 65
sigmoidea, 65
sinuata, 66
v. tabellaria, 66
*tabellaria*, 66
vermicularis, 66
Nitzschiaceae, 4, 64
Nodularia, 28
harveyana v. sphaerocarpa, 28
*sphaerocarpa*, 28
spumigena, 28
Nostoc, 28
carneum, 28
ellipsosporum, 28
muscorum, 28
pruniforme, 28
spongiaeforme, 28
verrucosum, 28
Nostocaceae, 3, 25

Ochromonadaceae, 3, 35
Ochromonadineae, 3, 35
Oedogoniaceae, 4, 85
Oedogoniales, 4, 85
Oedogonium, 86
acmandrium, 86
v. stictospermum, 86
acrosporum, 86
f. *connectens*, 87
americanum, 87
amplum, 87
angustum, 87
*areschoughii* v. *americanum*, 96
aster, 87
bohemicum, 87
borisianum, 87
boscii, 87

braunii, 87
capillare, 87
capilliforme, 87
capitellatum, 88
cardiacum, 88
  v. carbonicum, 88
concatenatum, 88
  v. superornatum, 88
crassiusculum, 88
  v. cataractum, 88
  v. *idioandrosporum*, 91, 92
*crassum* v. *amplum*, 87
crenulatocostatum, 88
  v. cylindricum, 89
crispum, 89
  v. gracilescens, 89
croasdaleae, 89
cryptoporum, 89
  v. *vulgare*, 97
curvum, 89
cyathigerum, 89
decipiens, 89
  v. africanum, 90
  v. dissimile, 90
diversum, 90
echinospermum, 90
epiphyticum, 90
flavescens, 90
fragile, 90
  v. abyssinicum, 90
franklinianum, 90
globosum, 90
gracilius, 91
gracillimum, 91
grande, 91
  v. aequatoriale, 91
  v. *angustum*, 87
  v. *majus*, 93
  f. *robustum*, 93
howardii, 91
  v. *minus*, 91
hystricinum, 91
idioandrosporum, 91
illinoisense, 92
intermedium, 92
irregulare, 92
kirchneri, 92
laeve, 92
lemmermanii, 92
longiarticulatum, 92
longicolle, 92
macrandrium, 92
  v. aemulans, 92
  v. propinquum, 92
macrospermum, 93
magnusii, 93
majus, 93
mitratum, 93
monile, 93
multisporum, 93
oblongellum, 93
oblongum, 93
  v. majus, 94
oboviforme, 94
obsoletum, 94
obtruncatum, 94
occidentale, 94
ouchitanum, 94
paludosum, 94
  v. parvisporum, 94
paucocostatum, 94
paulense, 94
perfectum, 94
pisanum, 94
  v. *gracilis*, 90
plagiostomum, 95
  v. *gracilius*, 91
plusiosporum, 95
pratense, 95
praticolum, 95
pringsheimii, 95
  v. nordstedtii, 95
*propinquum*, 93
pseudo-boscii, 95
punctatostriatum, 95
punctatum, 95
pugens, 95
pusillum, 95
rivulare, 95
rothii, 96
rufescens, 96
  v. exiguum, 96
  v. lundellii, 96
rugulosum, 96
  v. minutum, 96
simplex, 96
sociale, 96
subplenum, 96
suecicum, 96
taphrosporum, 97
tentoriale, 97
undulatum, 97
upsaliense, 97
varians, 97
vaucherii, 97
vulgare, 97
welwitschii, 97
wolleanum, 97
Onychonema, 140
  laeve v. latum, 140

Oocystaceae, 4, 106
Oocystis, 108
borgei, 108
crassa, 108
elliptica, 109
gigas, 109
naegelii, 109
solitaria, 109
f. major, 109
Ophiocytiaceae, 3, 31
Ophiocytium, 31
arbusculum, 31
capitatum, 31
cochleare, 31
gracilipes, 31
majus, 32
parvulum, 32
*Oscillaria*
*aerugineo-caerulea*, 19
*antliaria*, 23
*froelichii* v. *dubia* 155
v. *genuina*, 155
v. *viridis*, 21
*gracillima*, 22
*natans*, 23
*tenerrima*, 155
Oscillatoria, 20
acuminata, 20
agardhii, 20
amoena, 21
*amphibia*, 155
animalis, 21
articulata, 21
chalybea, 21
chlorina, 21
*cruenta*, 155
curviceps, 21
formosa, 21, 23
geminata, 21
limosa, 21
*minnesotensis*, 24
*nigra*, 155
ornata, 22
princeps, 22
prolifica, 22
sancta, 22
splendida, 22
*subsalsa*, 21
*subtilissima*, 155
tenuis, 23
v. natans, 23
Oscillatoriaceae, 3, 19

Palmella, 74
miniata, 74
Palmellaceae, 4, 74
Pandorina, 71
morum, 71
Pediastrum, 99
angulosum, 99
boryanum, 99
v. longicorne, 100
duplex, 100
v. clathratum, 102
v. rotundatum, 102
*ehrenbergii*, 103
integrum, 102
*pertusum*, 100
simplex, 102
v. duodenarium, 103
tetras, 103
v. tetraodon, 104
Penium, 140
margaritaceum, 140
Pennales, 4, 41
Peridiniaceae, 4, 143
Peridiniales, 4, 142
Peridinium, 143
bipes, 143
cinctum, 143
*cunningtonii*, 142, 143
inconspicuum, 143
pusillum, 143
*quadridens*, 142, 143
*tabulatum*, 143
umbonatum, 143
Phacus, 148
acuminata, 148
longicauda, 149
v. torta, 150
pleuronectes, 150
pyrum, 151
triqueter, 151
Phormidium, 23
ambiguum, 23
autumnale, 23
favosum, 23
foveolarum, 23
*foveolatum*, 23
incrustatum v. cataractarum, 23
inundatum, 24
minnesotense, 24
subfuscum, 24
tenue, 24
uncinatum, 24
Pinnularia, 56
appendiculata, 56
braunii, 56
brebissonii, 56
brevicostata v. leptostauron, 56

cardinalis, 56
divergens, 56
gibba, 56
globiceps, 57
hemiptera, 57
interrupta f. bicapitata, 57
major, 57
v. tranversa, 57
mesolepta, 57
nobilis, 57
parva, 57
*radiosa*, 54
tabellaria, 57
termes, 57
viridis, 58
v. elliptica, 58
Pithophora, 84
kewensis, 84
oedogonia, 84
varia, 84
Platydorina, 72
caudata, 72
Plectonema, 28
nostocorum, 28
tomasinianum, 28
Pleodorina, 72
californica, 72
illinoisensis, 73
Pleurocapsa, 19
varia, 19
Pleurocapsaceae, 3, 19
*Pleurocarpus*
*mirabilis*, 119, 120
*Pleurococcus vulgaris*, 155
Pleurosigma, 58
angulatum, 58
*attenuatum*, 52
*eximium*, 52
*kuetzingii*, 52
*minor*, 155
*spencerii*, 52
*wormleyi*, 52
Pleurotaenium, 141
coronatum, 141
ehrenbergii, 141
trabecula, 141
Polyblepharidaceae, 4, 69
Polycystis, 17
aeruginosa, 17
incerta, 18
*Polyedrium*
*bifurcatum*, 110
*gigas*, 110
*gracile*, 110
*trigonum*, 111
v. *minus*, 111
v. *tetragonum*, 111
Protococcaceae, 4, 81
Protococcus, 81
viridis, 81
v. *gigas*, 155
Pyrrophyta, 4, 142

Radiofilum, 75
irregulare, 75
Raphidiopsis, 30
curvata, 30
*Raphidium falcatum*, 106
*longissimum*, 106
*polymorphum*, 106
v. *contortum*, 155
v. *sigmoideum*, 106
Rhizochrysidaceae, 3, 36
Rhizochrysidales, 3, 36
Rhizochrysis, 36
limnetica, 36
Rhizoclonium, 84
fontanum, 84
hieroglyphicum, 84
Rhizosolenia, 41
eriensis, 41, 156
*gracilis*, 41
longiseta, 41
Rhizosoleniaceae, 4, 41
Rhizosolenineae, 4, 41
Rhodophyceae, 3, 30
Rhodophyta, 3, 30
Rhoicosphenia, 49
curvata, 49
Rhopalodia, 64
gibba, 64
ventricosa, 64
*Richteriella*
*botryoides*, 113
*Rivularia natans*, 30
Rivulariaceae, 3, 29
Roya, 133
obtusa, 133

Scenedesmaceae, 4, 111
Scenedesmus, 113
abundans, 113
v. longicauda, 113
acuminatus, 113
acutiformis, 113
arcuatus, 113
v. platydisca, 114
armatus, 114
bijuga, 114

v. alternans, 114
*bijugatus*, 114
brasiliensis, 114
carinatus, 114
*caudatus*, 116
denticulatus, 114
dimorphus, 115
*genuinus*, 116
longus, 115
v. minutus, 115
*minutus*, 115
obliquus, 115
opoliensis, 116
*platydisca*, 114
protuberans, 116
quadricauda, 116
v. *abundans*, 113
f. *horridus*, 115
v. quadrispina, 117
f. *setosus*, 115
v. westii, 117
Schizomeridaceae, 4, 98
Schizomeris, 98
leibleinii, 98
*Schizonema*
*viridulum*, 51
*vulgare*, 51
Schizothrix, 24
calcicola, 24
purpurascens, 24
rivularis, 25
Schroederia, 109
setigera, 109
Scytonema, 29
cincinnatum, 29
ocellatum, 29
tolypotrichoides, 29
Scytonemataceae, 3, 28
Selenastrum, 109
*acuminatum*, 113
bibraianum, 109
v. gracile, 109
*gracile*, 109
Siphonales, 4, 117
Sirogonium, 121
illinoisense, 121
sticticum, 121
Sorastrum, 104
spinulosum, 104
Sphaerella, 74
lacustris, 74
Sphaerellaceae, 4, 74
Sphaerocystis, 74
schroeteri, 74
*Sphinctocystis*
*elliptica*, 66
*librilis*, 66, 67
Spirogyra, 121
*adnata*, 155
areolata, 121
borgeana, 121
catenaeformis, 121
v. *parvula*, 127
circumlineata, 122
cleveana, 122
communis, 122
condensata, 122
corrugata, 122
crassa, 122
v. *formosa*, 124
crassoidea, 122
daedalea, 122
decimina, 123
v. *triplicata*, 129
denticulata, 123
diluta, 123
discreta, 123
distenta, 123
dubia, 123
ellipsospora, 123
v. *crassoidea*, 122
*fallax*, 124
fluviatilis, 123
formosa, 124
*fusco-atra*, 155
gracilis, 124
grevilleana, 124
groenlandica, 124
hassallii, 124
hydrodictya, 124
*illinoisensis*, 121
inconstans, 124
inflata, 124
v. *foveolata*, 123
insignis, 125
irregularis, 125
juergensii, 125
jugalis, 125
lagerheimii, 125
longata, 125
*lutetiana*, 155
majuscula, 125
maxima, 126
micropunctata, 126
mirabilis, 126
narcissiana, 126
neglecta, 126
nitida, 126
novae-angliae, 126
occidentalis, 126

*orthospira*, 125
parvula, 127
petitiana, 127
porticalis, 127
pratensis, 127
propria, 127
protecta, 127
punctiformis, 127
quadrata, 127
rectangularis, 127
*rectispira*, 155
reflexa, 128
reticulata, 128
*rivularis*, 155
rugosa, 128
scrobiculata, 128
setiformis, 128
singularis, 128
spreeiana, 128
*stictica*, 121
*subaequa*, 155
submaxima, 128
tenuissima, 128
v. *rugosa*, 128
teodoresci, 129
*ternata*, 126
tetrapla, 129
triplicata, 129
varians, 129
v. *minor*, 129
v. *scrobiculata*, 128
velata, 129
v. *occidentalis*, 126
wabashensis, 129
weberi, 130
v. *elongatum*, 155
Spirulina, 25
gomontiana, 25
jenneri, 25
major, 25
nordstedtii, 25
Spondylosium, 141
planum, 141
pygmaeum, 141
Staurastrum, 141
alternans, 141
crenatum, 141
cuspidatum, 141
dilatatum, 141
gracile, 141
hexacerum, 142
margaritaceum, 142
oxyacanthum, 142
polymorphum, 142
punctulatum, 142
*Staurogenia lauterbornei*, 112
Stauroneis, 58
acuta, 58
anceps, 58
v. birostris, 58
v. linearis, 58
gracilis, 58
*linearis*, 58
phoenicentron, 58
v. amphilepta, 58
phyllodes, 58
producta, 58
Stephanodiscus, 40
astraea, 40
v. intermedia, 40
v. minutula, 40
hantzschii, 40
*minutus*, 40
niagarae, 40
v. magnifica, 40
Stichococcus, 75
bacillaris, 75
flaccidus, 76
subtilis, 76
Stigeoclonium, 80
glomeratum, 80
longipilum, 80
lubricum, 80
v. varians, 81
nanum, 81
stagnatile, 81
subsecundum, 81
tenue, 81
v. *uniforme*, 155
Stigonema, 29
minutum, 29
Stigonemataceae, 3, 29
*Striatella*
*fenestrata*, 41
*flocculosa*, 41
Surirella, 67
angusta, 67
apiculata, 67
biseriata, 67
v. bifrons, 67
*campylodiscus*, 155
*cardinalis*, 68
didyma, 67
legans, 67
v. norvegica, 67
guatimalensis, 68
linearis, 68
v. constricta, 68
minuta, 68
*norvegica*, 67

oregonica, 68
ovalis, 68
v. *minuta*, 68
v. pinnata, 68
ovata, 68
patella, 68
robusta, 68
saxonica, 68
spiralis, 69
splendida, 69
Surirellaceae, 4, 66
Surirellineae, 4, 64
Symploca, 25
muscorum, 25
v. *rivularis*, 25
Syncrypta, 34
volvox, 34
Syncryptaceae, 3, 34
Synechocystis, 18
aquatilis, 18
Synedra, 45
acus, 45
v. *delicatissima*, 45
v. radians, 45
*biceps*, 47
capitata, 46
*chaseii*, 47
*crotonensis*, 44
v. *prolongata*, 44
*danica*, 47
*delicatissima*, 45
dorsiventralis, 46
hyalina, 46
*joursacensis*, 47
*lanceolata*, 46
*longissima*, 47
*obtusa*, 47
parasitica, 46
pulchella, 46
*radians*, 45
rumpens, 46
*simalongis*, 155
*spathulifera*, 47
*splendens*, 46
tenera, 46
*tenuissima*, 45
ulna, 46
v. aequalis, 47
v. biceps, 47
v. danica, 47
v. spathulifera, 47
*vitrea*, 46
Synura, 35
uvella, 35
Synuraceae, 3, 35
Tabellaria, 41
fenestrata, 41
flocculosa, 41
Tabellariaceae, 4, 41
Tetraedron, 110
bifurcatum, 110
gigas, 110
gracile, 110
limneticum, 110
lobulatum, 110
minimum, 110
f. tetralobulatum, 110
muticum f. punctulatum, 110
quadratum f. minus acutum, 111
regulare, 111
trigonum, 111
f. majus, 111
v. minus, 111
v. tetragonum, 111
*Tetrapedia emarginata*, 112
*gothica*, 155
Tetraspora, 75
gelatinosa, 75
lubrica, 75
Tetrasporaceae, 4, 75
Tetrasporales, 4, 74
Thorea, 30
ramosissima, 30
Thoreaceae, 3, 30
Tolypothrix, 29
tenius, 29
Trachelomonas, 151
acuminata, 151
armata, 151
caudata, 151
ensifera, 151
hispida, 151
magdaleniana, 152
schauinslandii, 152
similis, 152
tambowika, 152
*torta*, 155
urceolata, 152
volvocina, 152
v. *rugulosa*, 155
Treubaria, 111
crassispina, 111
Tribonema, 32
bombycinum, 32
v. tenue, 33
minus, 33
utriculosum, 33
*viride*, 32
Tribonemataceae, 3, 32
Trochiscia, 111

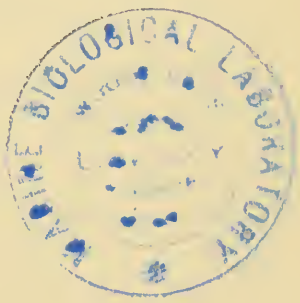
arguta, 111
reticularis, 111

Ulothrix, 76
tenerrima, 76
variabilis, 76
zonata, 76
Ulotrichaceae, 4, 75
Ulotrichales, 4, 75
Ulotrichineae, 4, 75
Ulvales, 4, 98
*Uroglena radiata*, 155

*Vanheurckia*
*rhomboides*, 51
Vaucheria, 118
aversa, 118
gardneri, 118
geminata, 118
v. depressa, 118
f. racemosa, 118
hamata, 118
longipes, 118
*macrospora*, 155
ornithocephala, 118
polysperma, 118
repens, 119
sessilis, 119
terrestris, 119
*tuberosa*, 117
Vaucheriaceae, 4, 117
Volvocaceae, 4, 69
Volvocales, 4, 69
Volvox, 73
aureus, 73
globator, 73
spermatosphaera, 73

Xanthophyceae, 3, 30

*Zoochlorella*
*conductrix*, 106
*parasitica*, 107
Zygnema, 130
adpectinatum, 130
azureum, 130
catenatum, 130
collinsianum, 130
conspicuum, 130
cruciatum, 130
v. *coeruleum*, 130
cylindricum, 130
decussatum, 130
excrassum, 131
insigne, 131
leiospermum, 131
neocruciatum, 131
neopectinatum, 131
pectinatum, 131
v. *anomalum*, 131
v. *conspicuum*, 130
v. *crassum*, 131
v. *decussatum*, 131
stellinum, 131
v. *genuinum*, 155
sterile, 132
subcruciatum, 132
subtile, 132
vaucherii, 132
Zygnemataceae, 4, 119
Zygnematales, 4, 119
Zygnemopsis, 132
decussata, 132
Zygogonium, 132
*decussatum*, 132
ericetorum, 132



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